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ABSTRACT

This collection of three reports by Swedish educators deals with problems of educational change posed by new patterns of teacher education and tasks at primary and secondary levels. The reports are preceded by Marklund's introduction, "The Background to Questions Concerning New Patterns of Teacher Education and Tasks." The first report, "Research and Innovation in Teacher Education," by Marklund and Gran, focuses on the development of teacher education in Sweden after World War II, and how educational research has facilitated renewal and innovation. "The Working Conditions of Teachers: A Case Study," by Bodell, examines conditions in both old and new types of schools. The study resulted from a government survey to determine whether implementation of various reforms would increase the teacher's working time. "New Patterns of Teacher Tasks: A Report on Experience in the Malmo Region," by Rodhe and Gran, looks at regional activities aimed at combining individualization and social education to achieve the main objectives of education. This report reviews new patterns of teacher tasks, such as changes in personnel organization and role division within schools. (JS)

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NEW PATTERNS OF TEACHER EDUCATION AND TASKS

country experience

SWEDEN

SP009 279

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PREFACE

Within the framework of the programme of work of the Education Committee, the OECD has over the last few years undertaken an analysis of various aspects of teacher policies in primary and secondary education.

At the heart of the problems which confront Member countries in the transformation of the teachers' roles are teacher education and new patterns of teacher tasks. These problems were analysed in an earlier OECD publication: The Teacher and Educational Change - A New Role.

Work and discussions among experts have led to a series of preliminary conclusions concerning trends in the two areas mentioned above and these have been published under the title: New Patterns of Teacher Education and Tasks - General Analysis. This analysis was based on a number of case-studies of innovations in Member countries, which seem to respond to some of the key questions in the future development of the teaching profession.

The interest shown in these analyses has encouraged the Secretariat to publish the most significant of them in a series of volumes. Each volume contains either country studies dealing with both teacher education and teacher tasks or studies which concern the more general aspects of training policies and changes in teacher tasks and working conditions.

FOREWORD

This volume is the Swedish contribution to a series of reports prepared in the framework of the OECD activities on problems posed by the new patterns of teacher education and tasks at primary and secondary level, in the context of educational change.

The volume contains three separate reports. These reports are preceded by a general introduction dealing with questions concerning new patterns of teacher education and tasks.

The first report, by Sixten Marklund and Bertil Gran, deals with Research and Innovation in Teacher Education.

The second report, The Working Conditions of Teachers, by Karl Bodell, sums up the results of a nation-wide study made by a Swedish governmental education committee.

The third report, New Patterns of Teacher Tasks, has been written by Birgit Rodhe and Bertil Gran, with contributions by Olle Engquist, Sune Lindh and Göre Rudvall. This report gives a review of locally based educational research and development in the school system of the city of Malmö. Corresponding activities exist, however, in other parts of Sweden and the Malmö experiences can be seen as an example of different types of development patterns in the country. The results of the Malmö report are of general interest as they represent new trends in education which are important for the understanding of new teacher tasks.

Thus the two last reports are case studies, the results of which should be considered in the implementation of adequate pre-service and in-service teacher training. They indicate how research and innovations in teacher training, broadly reviewed in the first report, should be followed up in the future by development work on a local as well as a central level.

Stockholm, April, 1974

Sixten Marklund

GENERAL INTRODUCTION

THE BACKGROUND TO QUESTIONS CONCERNING NEW PATTERNS OF TEACHER EDUCATION AND TASKS

by Sixten Marklund,
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1. Changed conditions due to the prolongation of compulsory school attendance

Changes in the field of schooling and education during the post-war period have been swifter and more far-reaching than at any other time in the history of education. One of these changes has been the prolongation of compulsory schooling. As recently as 1949, compulsory school attendance in Sweden was limited to six or seven years. Following a Riksdag resolution adopted in 1950, this was increased to nine years. This reform was implemented by stages until by the end of the 1960s it was fully in force. The school system came to include a lower secondary stage for all, i.e., not merely for pupils with ability and motivation for theoretical studies. To many teachers the idea of all young persons attending school until the age of 16 came as a revolutionary innovation. It was still more revolutionary that this prolongation was effected, not by prolonging the primary stage (the class teacher stage) but by admitting all pupils to a lower secondary school where the instruction was provided by subject teacher. Teachers were thus confronted with formidable new tasks, not only at lower secondary level but throughout the whole range of compulsory schooling. Perhaps the greatest problems were those faced by the secondary school teachers, though the primary school teachers were not far behind in this respect. The gap between the "people's" school and the academic school had to be bridged. Primary school teachers and secondary school teachers had to co-operate and collaborate.

2. Postponement of pupil differentiation

The question of a postponement of the differentiation of pupils between different study routes was directly connected with the prolongation of universal school attendance. In the previous school system, the pupils who were to go on to what were termed higher schools were selected after only 4-6 years of primary school. Those pupils who were thought suitable for continued theoretical studies or whose social and economic background was such that they were automatically destined to continue in this direction, were selected after special knowledge tests or on the strength of their school reports as early as the age of ten. They constituted a privileged minority, amounting only 25 years ago to no more than about 20 per cent.

The resolution of principle adopted by the 1950 Riksdag postponed the differentiation of pupils from the age of 10 to 15. In 1969 this differentiation was put back one more year, with the result that it now occurs at the age of 16. Consequently the whole of the new compulsory school is undifferentiated. Pupils are not regrouped into lines and study routes until after this stage.

The postponement of pupil differentiation into different lines of study, often termed theoretical and practical, has had important effects on the work of teachers, their education and further training. To many teachers it was a novelty for pupils who had formerly been divided between completely different study routes according to their

backgrounds, aptitudes and interests to be kept in one and the same class or group. Apart from certain extremely low performers or pupils with handicaps being taught separately to a certain extent, a single class could now include pupils with a diversity of aptitudes and interests. Many teachers found the heterogeneity of these teaching groups a new and difficult problem to which traditional, well-tried methods were often unequal.

3. The pupils' free choice of subject and study route

The tasks and role of the teachers also changed in another respect. Traditionally it had been the teacher who decided who was to go on to junior secondary school or gymnasium and who was to remain in the final classes of compulsory school. He was the judge and decision maker where selection for higher studies was concerned. He decided who was to be allowed to take foreign languages or make the acquaintance of the subject teacher system of secondary school and its atmosphere of theoretical studies. These functions, which undoubtedly gave the teacher prestige, status and power, were radically transformed by the introduction of free options. Under the 1962 Swedish Education Act the pupil and his parents have a free choice of subjects and courses in compulsory school. The teacher can and must furnish information concerning the implications of different choices. He shall also help and advise the pupil and his parents in their choice of subjects and courses, but he can never force a pupil into a particular choice. It is impossible for a teacher to assert his own views even if he is convinced that a pupil is incapable of completing the course he chooses.

The free choice of subjects and courses has been fully introduced in Sweden. The resultant experiences have been relatively encouraging. The number of patently "mistaken" choices has been limited. Nonetheless the role of the teacher has been thoroughly transformed through his being deprived of the task of "sorting" pupils into different study routes. His role and participation in the distribution of pupils between subjects and courses differing in content and standard remains important, but it is discharged in a completely different manner from that associated with the traditional selective school. Even the marks given by the teacher are not of any decisive importance for the student's choice.

It should also be mentioned that the organizational scope for the choice of subjects and courses has been considerably reduced. Grades 1-6 (the primary level) provide no scope for free choices at all: basically all pupils take one and the same course. In lower secondary school (grades 7-9), which forms part of the new compulsory school, most of the time (80 per cent) is devoted to activities common to all, only a small proportion (20 per cent approximately) providing an opportunity of freely choosing optional subjects and alternative courses.

The pupil now has the possibility of a free choice of line in upper secondary school (comprising theoretical, technical and vocational subjects), regardless of the options chosen by him in grades 7-9. This further reduces the traditional role of the teacher in determining selection for higher studies.

Selection has thus been superseded in the compulsory school by options, which represent a new form of differentiation. In the transition from compulsory school to upper secondary school, and still more as regards selection for the subsequent transition to university and higher studies generally, allocation between different study routes is still determined, however, to a certain extent on the basis of merits from the previous school and, consequently, is influenced to no mean extent by the teachers by whom merits are awarded. Here too, however, the role of the teacher as a solitary judge

has begun to diminish, above all due to the addition to merits and teachers' recommendations of new selective instruments such as objective study aptitude tests and requirements concerning experience of working life.

4. Orientation and guidance

As has already been described, the teacher has been divested to a great extent of his former role of solitary judge in matters of differentiation and has instead assumed the role of guide and informant. This requires somewhat new qualifications. The teacher's advice has to be based on knowledge of the pupils and their circumstances. His advice must always be based on a prediction of the pupil's subsequent problems, which in turn requires a knowledge of the pupil's general background, his aptitudes and interests. This knowledge should not be confined to the sector of instruction for which the advisory teacher is responsible but should also embrace other subjects and functions. All this requires greater collaboration between teachers. Provision has been made to this end in the school statutes, which stipulate the holding of two kinds of teacher conference, viz. subject conferences for all those teaching one and the same subject in a particular school, and class conferences for all the teachers taking a particular class, regardless of subject.

The need for increased orientation and guidance has also led to the appointment in secondary school of special experts for study and vocational guidance. These officers have proved a valuable supplement to the teachers, not least as regards collaboration with parents and with industry and other employers, e.g. with a view to finding vocational practice employment for the pupils. This in turn raises a more extensive question, namely that of the specialization and categorization of teachers in different tasks, to which we shall return in due course.

5. Widening and increase of upper secondary education

Up to the beginning of the 1950s, only about ten per cent of each generation went on to upper secondary school, which at that time was equivalent to gymnasium. Vocational education was provided on a limited scale only and mostly at lower secondary level, i.e. as a parallel to junior secondary school.

Things have changed very rapidly since then. In 1952 a general line was added to the Latin and Natural Science lines, until then comprising gymnasium. In 1964 this gymnasium was co-ordinated with technical gymnasium and commercial gymnasium, which until then had been separate institutions. At the same time the three-year gymnasium acquired a two-year parallel alternative with lines for the study of social, technical and economic subjects.

The period 1955-1965 saw a rapid expansion of vocational schools, which were established by practically every local authority in Sweden. These schools underwent a radical process of reorganization at the end of the 1960s, resulting among other things in their complete promotion to upper secondary level as a continuation of the nine-year compulsory school.

In quantitative terms this meant a rapid expansion of the educational system at upper secondary level. From approximately 10 per cent of each generation in the early 1950s, the proportion continuing to upper secondary education rose to 70 per cent or higher by the beginning of the 1970s, i.e. was multiplied many times over in the space of twenty years. As a result the character of upper secondary school was radically transformed. Instead of an elite school for the select few it became a school for all or at least for the overwhelming majority. It would be hard to overstate the consequences

of this transformation to upper secondary teachers. Although the number of study routes has been radically recast and reduced in recent years, there still remains a great variety of educational facilities at this level. Above all, students at this level display a wide variety of aptitudes, needs and interests. The tasks of the teachers have changed in many respects. The narrow academic focus of teaching and studies at upper secondary level is not enough. The role of the teacher has acquired many new and altered features. Thus upper secondary teachers today have to be prepared to meet pupils in their groups who are poorly motivated or who display deficiencies in elementary basic skills of reading, writing, mathematics and foreign languages.

6. Co-ordination of theoretical education, practical training and vocational education

Since 1970 all upper secondary study routes for students between the ages of 16 and 18 or 16 and 19 have been grouped under a single organization termed the integrated upper secondary school. In addition to the five 3-year lines formerly qualifying for higher studies, there are now an additional seventeen 2-or 3-year lines, fourteen of which are directly vocational.

One of the aims of this co-ordination of study routes into the integrated upper secondary school was to diminish or eliminate the differences of status traditionally applying between theoretical and practical studies. Teachers of theoretical and vocational subjects now belong to the same upper secondary school staff. They have the same head teacher and they come under the same local education authority. They co-operate in the planning of school work as well as sharing the same staff room and other premises.

The integration of upper secondary education has barely begun. It will entail considerable changes in the tasks of teachers. The combination by certain pupils of theoretical and vocational subjects will call for new syllabus planning. The same applies to pupils changing from theoretical to practical subjects and vice versa, as they are to be at liberty to do in the new upper secondary school.

7. Comprehensive school instead of parallel schools

The incorporation of formerly separate schools and study routes in one and the same school organization has on the whole proceeded without difficulties. As a result of the introduction of the comprehensive school system, the national school structure has become identical in all important respects, in town and country, north and south, and in regions of varying geographical and economic structure.

Quite naturally, on the other hand, the new organization has involved many changes from the point of view of head teachers, teachers and other school personnel. It has not always been easy to find suitable examples of this co-ordination for purposes of practical and theoretical teacher education. Thus within the integrated upper secondary school, existing school premises, most of which were built under the parallel school system, will have to be converted within the near future.

8. Abolition of the term "failed"

In the former compulsory school, elementary school, the terms "passed" and "failed" were used in the same manner as in the non-compulsory secondary school. The introduction of the new nine-year compulsory comprehensive school meant among other things that these terms were removed from the award of all merits. It was considered unfair for a pupil to be failed by a school which he had been forced to attend. It was the task of the school and its teachers to help the pupil to achieve optimum development and if the pupil's results were unsatisfactory this could not be blamed on him. Results were

graded on a five-point scale, 1 being the lowest and 5 the highest award obtainable.

Subsequently the same rule was introduced in upper secondary school, though teachers here were enabled to refrain from awarding any mark to a pupil who had not attended their lessons or whose knowledge for other reasons was practically nil. This prerogative was only exercised in a very small number of cases.

The removal of the distinction between pass and failure had important effects on teachers and their work. Thus the teacher could no longer "deliver" himself and his class from a slow and backward pupil by failing him. This in turn has helped to broaden the variety of the individual class. Sometimes the difference between the best and the worst students in an upper secondary school class can correspond to more than ten years' schooling according to standardised achievement tests. This has confronted the teacher with increasing problems with regard to the individualization of teaching. Probably there has always been a wide range of variation, but in the new school system it is no longer possible for the teacher to reduce that variation directly by failing and rejecting pupils. The means at the teacher's disposal are on the internal educational level, i.e. individually adjusted instruction.

9. Continuous evaluation instead of a final examination

The new rules also provide that the students' study achievement is to be checked on a continuous basis throughout the school year. This check is not to be deferred until the end of the school year or term and then given the character of an exclusive, non-recurrent evaluation. Instead the observations and checks carried out during the year are to be summarized in a final evaluation.

The rule of continuous assessment also entails the abolition of the final examination. Matriculation or the baccalaureate ceased to exist in 1968. Students now leave school with a document setting out the content of their education and their achievements in the different sectors of that education, rated on a five-point scale. Continuous assessment has also practically eliminated the practice of retaining a student in the same grade for a second year. Students do sometimes repeat a grade, but this usually happens when they change lines and it is always decided in consultation with the pupil and his parents.

This also represents a breach with the teacher's traditional function of passing a student for promotion to a higher grade and of setting a final examination. Inevitably this system has helped to increase the breadth of variation occurring in the individual pupil with regard to knowledge and ability. This in turn increases the need for measures of individualization in teaching.

10. Wider access to higher studies

The great majority of pupils thus go on to upper secondary school on completion of their compulsory schooling. Most of these in turn complete their upper secondary education. This means that roughly three out of every four pupils pass through one or other of the lines of upper secondary school. Naturally this has radically transformed the conditions attaching to the transition to continued higher studies.

Seen from the teachers' point of view, the new and as yet incomplete rules for admission imply that although the merits and recommendations awarded by the teacher are still very important, they are no longer as crucial to the student's future career as was formerly the case. Here too the role of the teacher has been transformed.

11. Summary

The problems of teacher education are governed by the goals and organization of school and the consequent definition of the role of the teacher. The rapid transformation of the school system in recent years has produced new and changing demands on the teacher. Among other things, the following changes have taken place:

- Compulsory schooling has been prolonged and now lasts until the age of 16. All pupils are now obliged to attend a lower secondary school. This has transformed the role and tasks of the teacher at this secondary level and at the preceding and succeeding levels.
- Pupils are no longer divided between different study routes after 4-6 years of primary school. Instead they are divided after their nine years of compulsory education. As a result teaching groups are more heterogeneous.
- Insofar as division into subjects and courses does occur, it is governed by the free choice of parents and pupils and is not determined by the teachers. The teachers provide orientation and advice but cannot prevent a choice which they consider unsuitable.
- Upper secondary school has been broadened to include study routes with theoretical, technical and practical subjects. More than 70 per cent of pupils now go on to upper secondary school.
- Different study routes, formerly often accommodated in completely different schools, have been incorporated and co-ordinated within one and the same school organization. The parallel school system has been succeeded by a comprehensive school system. New forms of teacher co-operation are needed.
- The distinction between pass and failure has been abolished in schools. A single final examination has been replaced by continuous evaluation. Retention has almost completely disappeared. All this means less control on the part of teachers over students' careers and increased demands for individualization in the heterogeneous student groups.

It should be noted that the changes in the role and tasks of the teacher entailed by the above reforms sometimes, but by no means invariably, met with resistance on the part of the teachers themselves. Often, indeed, the teachers were among the first to advocate the new order of things.

I

RESEARCH AND INNOVATION IN TEACHER EDUCATION

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SUMMARY

This report deals with the development during the post-war period of teacher education in Sweden and how in this context educational research has been used as a means for renewal and innovation. The presentation comprises eight chapters, each ending in a short summary.

In the first chapter the topic of the report is defined.

In the second chapter the consequences for the teachers of these changes are discussed. The teacher will, for instance, meet new groups of students, new subjects and new methods of teaching and learning. The way these changes influence goals and conditions of teacher education is discussed in chapter three. The focussing of teaching activities on the individual student and his personal development is emphasized. The need for coordination of the training of different teacher categories is also stressed.

One of the new goals for teacher education is that it should rest on a scientific basis. The organizational prerequisites for this are described in chapter four, for instance the restructuring of courses in educational theory and practical training, and also the allocation of educational research to teacher training institutes.

Chapter five deals with the organization of this research at the institutes for teacher training and with the funding of this research. The sixth chapter gives a presentation of a number of teacher training research projects. A further specification of research projects on teacher aptitude and teacher effectiveness is given in the seventh chapter.

The conclusions that can be drawn from this presentation as to the improvement of teacher training and how this training can be scientifically based, are summarised in twelve points in the eighth chapter. The Swedish experiences of the reform activities can be characterized as predominantly good, even if it has been found that the improvements require more time and resources than was expected initially.

I. INTRODUCTION

The purpose of this report is to give a concise description of research and development work in Sweden in the context of teacher education. First of all we would observe that the boundary between research and development on the one hand and current administration on the other is a fluid one. For present purposes we have found it appropriate to define research and development work in fairly broad terms. This means that, apart from teacher education research in the strictest scientific sense, we also consider a series of development questions directly related to that research. These development questions may concern the organization of teacher education, curricular matters, teaching materials and evaluation. We would emphasize, however, that matters of this kind are only dealt with insofar as they concern the application and testing of results and experiences deriving from teacher education research in the more restricted sense.

In recent years teacher education research has attracted considerable interest on the part of others as well as educational researchers. Educational policy makers and administrators have tended more and more to come into direct contact with research into teacher education. As a result they have come to function not only as utilizers of research but also as sponsors. In Sweden this has happened in two main contexts, viz. government committees on educational matters and central educational authorities. Every recent major reform of the school system and teacher education in Sweden has been preceded by a thoroughgoing investigation through the medium of government committees. It is a typical feature of these Swedish committees that they have formed a meeting point, not only for school policy makers and school administrators but also for researchers and teachers. The confrontation occurring between these different groups of personnel has proved extremely important. At the same time as it has enriched school policy with systematic knowledge, it has broadened the researchers' range of contacts and so helped to break their previous, much maligned isolation from practical educational issues.

The second sphere of activity in which researchers have come to co-operate more closely with school administrators is to be found in the central educational authorities. The two most important of these are the National Board of Education and the Office of the Chancellor of Swedish Universities (UKA). The National Board of Education is responsible for the central planning and development of the national school system. Teacher education comes under the jurisdiction of the Board in certain respects, above all as regards its practical and pedagogical aspects, while in other respects, above all as regards the teacher trainees' subject studies, it comes under the jurisdiction of UKA. These central educational authorities are non-political but nonetheless discharge functions which in most other countries are vested in Ministries of Education. They are responsible for the development of the educational system in line with political decisions of principle. This means that they are in charge of the central planning and administration of educational research, including our present subject, i.e. research and development in teacher education. The National Board of Education particularly has in consequence developed into a channel of communication between educational researchers and educational administrators.

If the contacts in Swedish education between researchers, administrators and policy makers have thus helped to widen educational research to include committee activities and government inquiries, certain restrictions have to be made in other respects. Thus our present subject is almost exclusively concerned with research and development work in Sweden, though a limited number of studies from our neighbouring countries of Finland and Norway are also included, one of the reasons for their inclusion being that they have often formed part of joint Scandinavian projects or have otherwise been conducted in close co-operation with researchers in our neighbouring countries.

A further restriction is made in that the report is principally concerned with research and development work over the past ten years. Only a small number of studies have been included from the period before 1960.

Finally the questions dealt with here are primarily concerned with what are termed qualitative aspects of teacher education, i.e. questions concerning the way in which this education is to produce <u>good</u> teachers. Quantitative aspects of teacher education, i.e. questions as to how the school system is to be assured a <u>sufficient number</u> of teachers, are not dealt with.

Summing up:

a) The report covers both educational research and educational development work in the field of teacher education.

b) It is confined to conditions in Sweden, reference being made, however, in a few cases to studies in Finland and Norway.

c) It is principally confined to the period after 1960.

II. NEW DEMANDS ON TEACHERS

2.1 Consequences of the reform of the school system

The enumeration in the general introduction of the changes made to the school system could be continued and made more detailed. These changes have in fact been so widespread that hardly any trace of the school system of the 1940s remains today. But the ten items referred to above are sufficient indication of the circumstances underlying the topic we shall now proceed to consider more closely: a reform of teacher education. In 1967 the Swedish Riksdag resolved on the adjustment of class teacher and subject teacher education to the requirements of the new school system. Since 1968 the training of these teachers has taken place at schools of education common to both categories. The resolution was preceded by thorough investigations and try-out activities. Subsequent resolutions have also incorporated the education of teachers of technical and vocational subjects in the schools of education, and partly also the training of pre-school teachers and guidance specialists. These reforms of teacher education are both a consequence and a precondition of the school reforms outlined in the general introduction.

In order to describe more clearly the conditions attaching to the reform of teacher education, a brief retrospect will be necessary of the previous system of teacher education and its origins. The roots of secondary school extend far into the past. Teacher education for this school comprised academic examinations, which were formerly not related to specific subjects and did not include any practical teacher training of the kind now considered self-evident. Teacher training - in common with education generally - was designed to qualify the teacher to instruct a select few. The goal of school was to educate clergy and civil servants using a method whereby the teacher to a great extent served as a lecturer or "lektor" in the literal sense of the term, i.e. a substitute for books. Despite the changes which have occurred in its goals, study environment and pupil clientèle, the subject teacher level of the Swedish school system has down to our own time remained impregnated with the heritage of this earlier school system.

Compulsory schooling is of far more recent origin. When it emerged during the nineteenth century it also assumed the character of a parallel school to the "academic" school. Elementary school teachers did not have to pass any academic examinations. On the whole it was sufficient for the teacher to learn what he was later to teach others. Teacher education was very much a matter of practical teacher training.

Class teachers and subject teachers have thus been trained in very different intellectual climates and in separate institutions. The boundary between class teachers and subject teachers was so rigid that one might ask whether teaching was one profession or two.

Both the goals and the forms of activity of the lower and higher schools were gradually equalized. This process was accompanied by a certain narrowing of the gulf between the teachers of the two types of school. Thus teachers in compulsory school also came to occupy themselves with other things besides teaching the elementary skills

of reading, writing and arithmetic. General, as well as aesthetic and practical, instruction gained a foothold in compulsory and non-compulsory school alike. Yet at the commencement of the reform of the school system, the teaching profession in Sweden was divided into class teachers and subject teachers in a way which it no longer is today. The former category received a subject education which was broad but shallow and which placed considerable emphasis on practical pedagogics. The training received by the subject teachers was narrower and deeper, with a very limited element of practical pedagogics. Consequently the new school did not appear to the extent one would have desired as one school progressing without a break from the first grade to the last. We shall in due course return to see whether the new scheme of teacher education introduced in 1967 has brought the two teaching categories any closer together.

Of all the consequences of the school reform to teachers, the following ten are particularly important:

1. New groups of pupils have been added to the school. Teachers in the "higher" school have to take the consequences of every class and pupil grouping including pupils whose aptitudes are other than academic. Classes have become more heterogeneous also as a consequence of an increasing migration within and between the countries, and also through the trend towards "integrated" classes, i.e. having pupils with "special needs" in regular classes.

2. New subjects have been added, subjects for which teacher education was not previously organized. General and vocational subjects were not formerly part of the traditional range of academic subjects and in consequence were neglected at school as well. But subjects retaining their traditional designation have also changed, in that they have acquired a new, revised content.

3. The emphasis on the rich and comprehensive development of the individual pupil is by no means new, but the range of subjects and the forms of organization given to the new school have created new relationships between subjects. The co-ordination of subjects and work procedures into an integrated whole, a complete curriculum, in which an individual subject can never be viewed in isolation, is thus a third consequence of the reform. The broadened goals and the social tasks of school have also led to a reappraisal of the learning which is to be given priority within a particular subject. Two trends of development have profoundly affected the role of the teacher. One of these is a development in favour of themes or spheres of interest (projects) which have partly eliminated the boundaries between subjects and which, at least where subject teachers are concerned, demand co-operation between different teachers. The second is that new "subjects" have been introduced which it is hard to reconcile with our traditional subject nomenclature. Sex roles and internationalization are cases in point.

4. A more flexible approach to teaching organization has begun to gain ground. Apart from the class, activities are based on pupil groupings of various sizes. The traditional 40-minute lesson has begun to a certain extent to give way to time modules of varying duration. The traditional subject division has begun to disappear, being replaced by other ways of organizing subject matter. But the most palpable effect on the tasks of the teacher is that school activities are tending more and more to be based on work in teaching teams.

5. Greater emphasis has been placed on the social tasks of school. Efforts are made at school to establish equality and understanding for people with different interests and aptitudes and with varying social backgrounds. Both organizational changes and the

renewal of methods have been undertaken with these ends in view. School is also employed as an instrument for measures with a social purpose, e.g. free school meals, the expansion of preventive health services in schools and the incorporation of leisure activities in school amenities.

6. The increased demands of social policy on school nave been combined with an added emphasis on individualization and greater consideration for the interests, needs and aptitudes of the individual. The teacher is expected to know each pupil well and to adjust the work in hand to suit the maturity and aptitudes of the individual. To make this easier, school pupil welfare resources have been expanded and new teaching materials designed. At the same time efforts have been made in various ways to give the pupil's personal motives and ambitions a decisive influence over his work situation at school and over his ability to be the architect of his own future. Student democracy and the free choice of lines and subjects are to b seen as expressions of this ideology. The increased consideration shown in various ways towards handicapped pupils is also an expression of the goal of individualization.

7. Naturally enough, technical progress has also penetrated schools. A series of new aids have become an integral part of school work. Cine projectors, overhead projectors, TV monitors and tape recorders are standard equipment in any school. Video tape recorders are rapidly acquiring the same status. At the same time new printed teaching materials of various kinds are being produced. Often these are combined to form study kits or more or less self-instructional materials requiring little or no contribution from the teacher.

8. One aim in recent years has been t- decentralize decision making so as to place the responsibility for various measures within the school system as close as possible to those affected. In certain matters at least, decisions affecting teaching and conditions in school rest with the staff and pupils concerned. The aim here is to develop the involvement and responsibility of the students and so prepare them for their role as members of a democratic society. Naturally this affects the traditional hierarchic structure of school and with it the status of the teacher.

9. The broadened goals and the host of tasks confronting school have created a need for persons with various specialist functions. Administrative functions are discharged by head teachers of various categories, pupil welfare is managed by various functionaries - school doctors, school nurses, school psychologists, welfare officers, remedial teachers etc. - teaching materials are managed by librarians and other media experts, service functions are performed by clerical staff, caretakers etc. This trend towards specialization also has a number of effects on the tasks of the teacher.

10. To these consequences, which in turn can be subdivided into a series of subordinate demands and conditions affecting the teacher and his work, is thus added the general and overriding change whereby school (and with it the teacher) has entered the service of society in a different and more tangible way. The teacher also has to co-operate with other officers outside the school.

2.2 Delineation of the role of the teacher

Greater interaction between school and society at large also affects the role of the teacher in a more restricted sense. In delineating the functions of the teacher one has to abide by three fundamental principles:

1. The function of the teacher must primarily centre on the individual pupil and his development as an individual and a member of society and only secondarily on the class, the group or the grade.

2. The function of the teacher is primarily concerned with the entire pupil and only secondarily with his achievement in individual subjects, portions of subjects or groups of subjects.

3. The function of the teacher must presuppose that the pupil develops continuously, not by leaps and bounds with grades and levels forming artificial resting points at fixed levels.

These requirements concerning the teacher's function in the realization of school goals have been of fundamental importance to the specialization of the teacher function and the categorization of teachers in connection with the introduction of the new scheme of teacher education. If these principles are fully accepted, it follows that the teacher's task cannot be divided up and that, accordingly, teachers cannot be categorized. Although this inference has not been possible, the rule has still applied that the teaching profession must be seen in as integral a context as possible and that those forms of specialization and categorization which are inevitable for practical reasons must not be allowed to impinge more than is absolutely necessary on the three principles stated above.

Clearly some sacrifice of these principles has to be made. It is an impossible task for one teacher to guide and educate his pupils in every subject and activity from beginners' level until adulthood. The higher the teaching level, the greater the degree of specialization that will be needed. One of the important questions to be decided therefore concerned the balance to be struck between the integration principle and the need for specialization.

Specialization may be achieved in different ways. It may be according to subject, grade, level, pupil category and so on. Different countries follow different patterns. Organizational and other practical factors may be decisive.

As was mentioned earlier, the greater part of the teaching profession in Sweden has been divided into class teachers and subject teachers. This duality has not arisen through the cleavage into two parts of an originally united group. No such unity has ever existed. Class teachers and subject teachers are the products of two different school systems which from the very outset were completely separate and catered for different groups of pupils.

2.3 The concept of the class teacher

The Swedish Teacher Training Committee, which during the years 1960-1965 investigated the teacher training systems and made proposals for a new training structure, argued in its report (1965) that there was too sharp a boundary between class teachers and subject teachers, and among the latter between teachers of traditional academic and non-academic subjects. Insofar as this division is a problem of teacher training, certain steps should be taken. First of all the old conception of the class teacher had to be revised.

The new demands on the teacher's skill, knowledge and subject orientation have, according to the Committee, made it practically impossible for one teacher to teach all subjects, even in primary school. The idea of the class teacher is, naturally, to stress the importance of the total view, and weaknesses in certain subjects have therefore been accepted. The situation has changed, however. It is possible now to provide the class

teacher level with specialists, and demands on teachers are much greater now than previously. This is true perhaps mainly of such subjects as music, art, gymnastics and handicrafts. In addition, foreign languages have become regular subjects at the class teacher level.

Teachers and prospective teachers have stressed how necessary it is to reduce the number of subjects taught by class teachers in favour of greater depth in fewer subjects. An investigation by G. Berlin (1963)*, concerned with all class teacher trainees in Sweden at the old training colleges (still in existence at that time) and the new schools of education, showed that two-thirds of the prospective class teachers wanted at least one of the practical subjects to be made voluntary. As expected, this wish was far more common among trainees at schools of education (88 per cent) than at the old teacher training colleges (57 per cent). In another study by I. Fägerlind (1965), a national sample of active class teachers were asked which of the following two alternatives they preferred to teach: (1) six subjects in several classes or (2) all subjects in one class. The latter alternative, i.e. the one-teacher system, was generally preferred (63 per cent), but it was chosen by only 55 per cent of the teachers with less than ten years' employment and by 69 per cent of the older teachers. Young male teachers preferred the alternative with fewer subjects in more classes (only 47 per cent chose the one-teacher system). And a large majority of the class teachers with some supplementary training favoured the specialized model (72 per cent as against only 28 per cent for the one-teacher system). This seemed to prove that class teachers - especially when given an opportunity to specialize - preferred a more restricted area of teaching subjects and therefore also needed some kind of specialized training. In Sweden such specialization had not been possible in class teacher education, studies being equally spread over all subjects for all students.

It is common knowledge that class teachers trained to teach all subjects in a class seldom do so. The exchange of subjects between colleagues and the employment of teachers specially trained for certain subjects have given rise to a modified class teacher system, due partly to teachers' demands for a limitation of subjects, and partly to organizational problems. Formerly, the number of teaching periods in a class was the same for both teachers and pupils, and it was natural for a teacher to devote all his teaching hours to one class. During recent years at least, the number of lessons for the pupils has often become greater than the number of lessons a teacher must give. If the teacher will not work overtime, the extra lessons must be given by other teachers, and so the pupils must have more than one teacher also at primary level.

The establishment of posts for teachers specially trained to teach music, gymnastics and handicrafts has become more common at the class teacher level, too. Nowadays specially trained teachers teach handicrafts in practically all schools, both rural and urban.

In 1962 the Swedish Teacher Training Committee made a nationwide study of the whole middle department (grades 4, 5 and 6) with reference to the application of the class teacher system. According to this study, an average of 76.8 per cent of the total instruction time was spent with the class teacher in charge of the class. Special teachers were responsible for 14.6 per cent of the total instruction, mainly teachers in handicraft, art, music and gymnastics. Other class teachers, and to a smaller extent subject teachers, were responsible for the other 8.6 per cent.

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* Literature referred to is listed at the end of the report.

This means that pupils at the class teacher level were already acquainted with the subject teacher, even though the class teacher had most lessons, and was thereby responsible for the unity of the class. This must be regarded as one of the consequences of the greater demands made on teachers by the new school. It will be seen from the table below that only 3.8 per cent of the classes applied the pure class teacher system. No fewer than 20 per cent of the class at primary level had more than five teachers. The situation differed somewhat according to grade; the higher the grade the more teachers in each class. In B-type classes, i.e. classes consisting of pupils from more than one grade, the number of teachers per class was distinctly smaller. But not even in such classes was the class teacher system completely dominant. At present, less than 15 per cent of all pupils in Sweden are taught in B-type classes.

The table shows that the class teacher system varies in municipalities of different sizes (cf. the difference between A and B schools). Even though the modification of the class teacher system has progressed farthest in urban areas, it is obvious that some restriction of subjects has also occurred in rural areas.

Percentage Distribution of Classes in which 1, 2, 3 etc. teachers are engaged

	Number of teachers teaching in the classes					
	1	2	3	4	5	>5
A-type (single grade) classes		-				
Grade 4	2.4	6.1	22.7	37.3	19.5	12.0
Grade 5	1.8	4.8	14.4	27.8	20.8	30.4
Grade 6	2.1	4.3	12.0	24.0	22.9	34.7
All classes of						
A-type (single grade)	2.1	5.1	16.5	29.8	21.1	25.4
B-type (multi-grade)	9.1	28.6	40.8	14.3	3.7	3.5
Both	3.8	10.9	22.5	26.0	16.8	20.0
All middle department classes in municipalities with populations						
0 - 4,999	8.9	21.4	31.2	29.9	9.3	7.3
5,000 - 9,999	5.6	17.1	30.5	22.4	12.6	11.8
10,000 - 29,999	2.8	8.8	25.2	31.7	17.8	13.7
30,000 - 99,999	0.6	3.2	16.0	32.7	24.5	23.3
100,000 -	0.1	2.7	9.8	23.8	21.8	41.8

The trend towards such a restriction by means of exchange of subjects and lessons between teachers is clear. In the A-type classes the percentage of class teachers not teaching their own classes in certain subjects was as follows:

Handicrafts	79 per cent
English	35 per cent
Music	30 per cent
Physical education	22 per cent
Art	12 per cent
Religion	12 per cent

One reason often given for this specialization was that many of the older teachers had not been trained to teach English, and that this subject had been introduced rapidly at this level throughout the whole country. If this was correct, lack of qualifications to teach English would be decisive, for the teacher's certificate should imply a return to the class teacher system. The investigation mentioned above showed that this reasoning

was not quite correct. The reasons given for exchange of subjects were:

16 per cent lack qualifications to teach English,
30 per cent teachers wished to limit the number of subjects,
54 per cent other, undefined reasons.

Thus only every sixth exchange of subjects was due to the teachers' lack of qualification to teach English. Other wishes expressed by the teachers themselves were almost twice as numerous.

Teachers' wishes for a restriction in the number of subjects may be even greater than the frequency of exchanges suggests. In Fägerlind's (1965) investigation, mentioned above, the following information was given about music, art and physical education (the figures give the percentages):

	Music	Art	Phys.educ.
Teachers teach and wish to teach	31	56	46
Teachers teach and would rather not teach	36	25	33
Teachers do not teach	33	19	21

Thus, about every third class teacher gave instruction in these subjects, but would have preferred not to do so.

2.4 Subject teachers

If we now consider the subject teacher stage, we find that the problem there emanates from a diametrically opposite view of the teacher; far too great a concentration on the individual subject, lack of a total view of the pupil and problems of pupil welfare. It is not surprising, therefore, that at this level the class conference, i.e. institutionalized co-operation between all the teachers engaged in one and the same class, has become very important. The subject teachers' experience in the upper department of the Swedish comprehensive school (grades 7, 8 and 9) is unanimous; the teachers should be allowed to see their pupils in different activities, in more situations and more subjects. It is therefore important to allow subject teachers to teach more than one or two subjects, and to give them wider subject and pedagogical orientation in their teacher training.

Such an extension of subjects in the upper classes combined with the above-mentioned subspecialization in the lower classes should lead to a modification of the unjustifiably sharp division between the two departments and their teachers.

As the school curricula in Sweden have been almost completely revised during later years, it has also become necessary to adapt the curricula of teacher training. Comprehensive studies have been made of what was called "demand for congruence": the prospective teacher should learn what he must later teach. Teacher training did not always provide the teacher with "congruent" knowledge. In order to gain a clearer idea of the type and extent of this problem the organizational and pedagogical conditions of teacher training at the universities were systematically analysed and described in terms of how courses were structured, how students were grouped in different types of teaching, how teaching was distributed between professors, lecturers, assistants, etc., how periods were used for discussion, small group studies etc. The amount of literature, types of examinations and so on. Data of these kinds were collected in 1965 by Inga Elgqvist for 24 university subjects up to M.A. level in four universities. These analyses were of necessity brief. Nevertheless, they supplied the Teacher Training

Committee with valuable information. Although the overall picture was very complex, certain common trends could be observed which proved to be valuable not only for teacher training but also for a rational planning of university studies in general.

Since this survey was made, it has been possible to make so-called "diagnoses of congruence". These were made in 1965 by groups of experts, in which people who had taken an active part in the drawing up of the new school curricula were employed. A great number of "incongruences" were found and described by P.E. Brolin (1965), some of them earlier well known.

In all types of teacher training there were areas that the prospective teacher would have to teach his own pupils later on but in which he himself underwent no training. Some examples of incongruence will be given. The school subject Swedish, formerly the "mother tongue", was equivalent at university degree level to the subjects "Scandinavian languages" and "History of literature with poetry". The experts indicated that there was a need for instruction in voice training and elocution. Extra tuition was also desired in speech, reading and writing. In university courses in modern foreign languages, greater ability in fluent, colloquial speech was required; the parts of the subject dealing with the history of language were deemed less urgent. In mathematics, wishes were expressed by the school experts for more practical application in the university teacher training courses, e.g. the interpretation of statistics, diagrams and tables. What is called physics at school consisted of three degree subjects at university level, namely physics, mechanics and astronomy. School chemistry required, at university level, a course in mineralogy in addition to chemistry. Biology as a school subject, represented at university by zoology and botany, missed, according to the experts, parts of genetics, medicine and hygiene. No marked incongruences existed in geography, history and religion, apart from the fact that the school subjects were equivalent to several subjects at university level. Thus a number of cultural, geographical and geo-science subjects, forming examination subjects at university level, had to be involved in teacher training to give a sufficient congruence with corresponding school subjects. Religion corresponded to a number of university examination subjects in both the theological and philosophical faculties. The teacher training for the school subject civics, which at university level has been economics and politics, necessarily had to be extended with short courses in theoretical vocational orientation and sociology.

The problem of congruence implies a definition of the question whether or not studies are to be concentrated on what is directly "useful". It also touches upon the old problem of formal education and the general development of personality by study. These questions, however, cannot be discussed here. The Teacher Training Committee warned against too easily acquired and simple a congruence, which might lead to a superficial view of and a rigid treatment of subjects. The term "congruence", with its implications of "uniformity", was seen as an unfortunate one. The Committee was not concerned with achieving absolute uniformity but meaningful relationships. This way of thinking was also characteristic of the voluminous and penetrating curricula suggestions that the Committee worked out for a new scheme of teacher training.

2.5 The role of the universities

The problem of congruence presupposes that comprehensive school (i.e. the compulsory school) has goals of its own and that these goals are in principle independent of subsequent education. A universal school cannot be exclusively tailored to the requirements of the higher school, which receives only a selection of pupils; neither

can courses and educational goals applying at university and within other forms of higher education. On the contrary, higher education must be adapted to basic schooling and the content of the studies pursued by prospective teachers must be calculated to benefit them in their work in comprehensive school.

At the beginning of the 1960s university arts faculties covered a total of 120 subjects. The range of subjects, which a quarter of a century previously had only amounted to about thirty, had risen due above all to the increasing specialization of research studies. Thus the delineation of disciplines followed the dictates of research. It was within this progressively widening range of subjects that prospective teachers had to pursue their subject studies. School subjects (i.e. the subjects taught by teachers) and university subjects (i.e. the teacher education provided by the universities) became more and more divergent. After the school reforms of the fifties and sixties, which to a great extent gave school a completely new repertoire of subjects, something obviously had to be done to restore the correspondence (or, as it was then termed, the congruence) between what the teacher had to learn and what he later had to teach.

In 1965 the Teacher Training Committee proposed that subject teacher education at universities proceed in fixed combinations of subjects specially designed for the teaching profession. Twelve such basic combinations were proposed, viz:

1. Mathematics - Civics
2. Mathematics - Chemistry
3. Mathematics - Physics
4. English - Swedish
5. German - Swedish
6. German - English
7. French - Swedish
8. French - English
9. History - Swedish
10. History - Religious Knowledge
11. History - Civics
12. Chemistry - Biology

The two subjects in each of these basic combinations could then be augmented by a third in the case of those wishing to teach in grades 7-9. Two subjects were sufficient for upper secondary school (grades 10-12), provided that they were studied for at least three years. A further 7 basic combinations, including a technical or an economic subject as well as an academic subject, were proposed for these teachers.

These proposals were adopted in all important respects by the Government and Riksdag, though the system of fixed combinations was applied to the whole range of university studies. Following two resolutions adopted by the Riksdag in 1965 and 1969 respectively, studies at arts faculties were reorganized in such a way that instead of having a free choice of individual subjects, students were now obliged to opt for a fixed course of studies lasting at least two years and comprising at least two subjects. At the end of these two years, the student could either choose a third subject or continue his study of one of the two subjects he had already taken.

Thus the proposals put forward by the Teacher Training Committee with sole reference to teacher education were applied to university studies in general. The fixed subject combinations and the fixed course of studies greatly reduced the number of beginners'

subjects at university. For instance, a student wishing to take genetics could not start by specializing directly in that subject. Instead he had to start with a biology course lasting at least one year and comprising cellology, botany, zoology, ecology and human biology as well as genetics.

To take another example: a student wishing to take the history of literature was obliged, before specializing in that subject, to take an eighteen-month course which, apart from Swedish and the general history of literature, included the theory of communications, drama and cinema, grammar, phonetics, public speaking, Danish, Norwegian, Swedish wording, the history and sociology of language, written composition, literature studies and literature for children and young persons.

Following the Riksdag resolutions, the development of these syllabi was continued through a series of administrative decisions. Among other things, the education of teachers of technical and vocational subjects has now been incorporated in the schools of education as a special line side by side with the practical training of teachers of academic subjects. A new Teacher Training Committee set up in 1967 (LUK, an abbreviation of "Lärarutbildningskommittén") has recently suggested organizational forms for the training of teachers whose appointments combine academic subjects with such subjects as arts, physical education, music, manual instruction and domestic science. Another important Government Committee, the 1968 Committee on Education (U 68), has recently put forward proposals for a thoroughgoing reform of all higher education, including the whole fabric of teacher education. According to these proposals, all higher education is to be primarily vocational. U 68 abandons the concept of faculties and instead refers to subject sectors and educational sectors. One of the five major educational sectors proposed is concerned with training for the teaching professions. The Riksdag has not yet adopted any resolutions based on the proposals put forward by the LUK and U 68 committees.

All of these decisions and proposals indicate a desire to establish a form of teacher education which will bridge the traditional and now unwarranted gaps existing between different school levels, types of school, subjects and forms of organization. The measures thus taken and proposed are aimed not least at putting technical and vocational subjects on a level with traditional academic subjects in schools and of endowing them with the same prestige.

2.6 Principles for a new institutional structure of teacher training

It is important for all teachers, whatever their speciality may be, to feel that they belong to the same professional group. One necessary condition of this is that the different categories of teachers receive their training in about the same intellectual climate. Training at universities, teacher training colleges and other training institutions need not be exactly the same, but some quite unnecessary differences can be eliminated. University training and class teacher training are still incompatible in most European countries. As already mentioned, each goes to extremes in its own direction. The differences can be explained historically by their formerly clearly different levels; the training college was parallel to the senior secondary school and was therefore below academic level.

One step in a series of urgent measures is therefore to start all teacher training as far as possible at the same level, namely after upper secondary school.

This is the first important principle of revised teacher education. The second must be to ensure that items and subjects common to different groups of teachers are presented in about the same way. This will refer primarily to psychology, pedagogics and general methods, but also to certain overlapping subject orientation.

The third principle will be to organize the training of different groups of teachers in similar learning climates. From what has already been said about training at training colleges being too school-like, and its opposite - a far too free teacher education of an academic character with rather diffuse objectives - it follows that teacher training should take new paths. A teacher training institution should be organized on the same lines as professional institutions with fixed courses of study similar to those used in the training of doctors, dentists and engineers. These are fixed, though not by weekly timetables as in the teacher training colleges, but provide possibilities of great concentration and deepening in certain sections of the course. In this way, the everyday concern with multiple tasks, which has long been a weakness of the teacher training colleges, can be avoided. It also makes possible detailed studies of certain sections, which are necessary for the personal development of the teachers. By a limited freedom of choice, those who lack the apitude for certain subjects, for example music and gymnastics, should be able to reject them. Generally speaking a teacher in the new school cannot be expected to lead his pupils in individualized work and independent studies and an active search for knowledge, unless he himself has been able to apply these principles in his own education.

A fourth fundamental principle of reformed teacher training and a consequence of the three previous ones is that training should, to a greater extent than hitherto, be given in a more uniform organization. Professional institutions of education should be established for the actual professional training. Studies of subjects may also be included in this organization, but may, according to the location of resources, be arranged elsewhere. As far as teacher training in the ordinary school subjects is concerned, it is important for class and subject teachers to have the same educational environment. The universities should be utilized, and the old duality between subject teachers and class teachers should be eliminated. The latter should be marked and graded in the same way as subject teachers. It should be possible to include courses for the class teacher certificate in training for competence to teach at higher levels in the same subject.

2.7 Summary

One of the consequences of the school reforms of recent years has been that secondary school teachers have had to teach new pupil categories, including pupils who are not directly interested in academic studies. New subjects are also being added to school, and the mutual relations of different subjects are often changed. New forms of flexible pupil grouping and flexible timing are being applied. The interdisciplinary approach increases the demand for team teaching or other forms of collaboration between different personnel groups. Additional novelties include the results of a host of technical innovations concerning teaching kits and programmed learning. The teacher role is also influenced by the trend towards greater decentralization or decision making in school administration and in the planning of instruction.

Teachers in the new school can be grouped into various categories according to level, class, subject(s) and pupil categories. However this division is effected, efforts should be made in the context of teacher education to cater for the desiderata

common to all teacher roles, viz the teacher's instruction is to be primarily concerned with 1) the individual (not the class or the group), 2) the whole of education (not with separate subjects or courses) and 3) a continuous maturity process without binding courses and requirements to particular grades and qualification levels.

There is no justification for the strict boundary hitherto separating class teachers and subject teachers. Class teachers no longer function in strict accordance with the principle of one teacher - one class - all subjects. They desire a certain amount of specialization and a limitation of the number of subjects they teach. Pupils in primary school are taught to a limited extent by other teachers besides their own class teacher. The subject teaching element increases throughout primary school.

One of the problems of subject teacher education, known as the congruence problem, is that subject education does not cover what the teacher subsequently has to teach. This has necessitated a restructuring of courses and subject combinations in university studies.

A scheme of teacher education adjusted to the new conditions should be designed in such a way as to: 1) start at the same level for all teacher categories (class teachers, subject teachers etc.); 2) comprise certain items common to all teacher categories; 3) proceed in the same intellectual climate; and 4) take place in an external organization which is roughly the same for different teacher categories.

III. THE GOALS AND STRUCTURE OF TEACHER EDUCATION

The 1960 Teacher Training Committee was commissioned by the Government to propose measures for the adjustment of teacher education to the requirements of the new school system. The experts submitted seven printed and eleven stencilled reports which included more than ten scientific studies and comprehensive draft syllabi for the education of class teachers and subject teachers.

The experts' proposals were circulated to a large number of organizations and authorities. A Bill, based for the most part on the Committee's proposals, was then put by the Government to the 1967 Riksdag, which resolved in favour of a new organization principally based on the original proposals and destined to come into force in 1968.

3.1 Goals of teacher education

The teacher education experts summarized the goals of the new system of teacher education in twelve points:

1. The education must harness or create an interest on the part of the prospective teacher in the individual pupils and their individual development and must deepen that interest in connection with the study of the goals of the school system, the design of courses and the recommended work procedure.

2. The education must harness or create an interest in co-operation with others in connection with the pupils' education, attention being focussed on collaboration with their homes, co-operation between the teachers at school and co-operation between different school levels.

3. The education mu t help to inculcate respect for the human dignity and personality of the pupil and a respect for his right to personal development. This includes an intensification of the teacher's duty to be objective and to provide neutral information on controversial issues concerning attitudes to life and views of society.

4. The education must give psychological insight, with particular emphasis on development psychology and aimed at inculcating an understanding of the differences between pupils with regard to aptitudes for school work.

5. The education is to provide the requisite knowledge of pedagogics, with particular emphasis on the contemporary history of the school system, the ideology of the reform of the school system, the goals of school work and the corresponding teaching principles.

6. The education must inculcate proficiency in the management of the work procedure recommended for the school system, priority being given to independent activity by the pupils and to the individualization of school work.

7. The education, which in the case of all teacher categories is to be based on a preceding course of general education corresponding to a complete course of studies at upper secondary school, is to amplify that education, e.g. with reference to the link between school work and social development and the task of school in providing

aesthetic education.

8. The education is to be scientifically founded and is to inculcate a scientific and critical attitude to phenomena and problems.

9. The education is to provide the subject knowledge and subject skills required for different subjects and levels.

10. The education is to be planned in such a way as to establish a sense of community between the different teacher groups.

11. Practical teacher training is to be integrated with the teaching of methods and is at the same time to provide a clear illustration of the new work procedure.

12. The education is to form part of the continuing process of educational reform and is to lay the foundations of a willingness and ability to restructure and reappraise the work situation of school, its courses and subject matter, and also to enable the teacher to take part in scientific educational research and development work.

There was considerable unanimity among the authorities and organizations consulted where the goals of the reform were concerned. The experts' twelve points were endorsed. Opinions only began to diverge when it came to expressing the general goals in concrete terms. These goals were also propagated by the Minister responsible for the Teacher Education Bill (1967:4) on which the Riksdag resolution on the subject was eventually based.

The goal can thus be said to be of a dual nature: to adjust teacher education to the new school and to promote the further development and improvement of that school. Due above all to the latter consideration, it is impossible for the goal to be defined immediately in every detail. This in turn leaves room for varying goal definitions.

3.2 The duration of teacher education

From certain points of view, teacher education can never last too long. A teacher can never acquire too much knowledge or skill. He must possess the overall view, the depth and the maturity required to inform and guide pupils and direct them to sources of knowledge in wide-ranging subject sectors. He should not be alien to problems which while not directly coming within his subject sphere are nonetheless connected with it.

A great deal of importance can also be attached to the need for vocational training. The larger the proportion of pedagogics, methodology and teaching practice included in teacher education, the more fitted the teacher should be for his profession. The more school levels, pupil categories and individual pupils the prospective teacher can become acquainted with in the course of his training, the better equipped he will be to deal with a specific school situation.

All these considerations point in favour of a prolonged and comprehensive course of teacher education, but it is probably impossible to say exactly how long and how comprehensive that education should be. Opinions diverge on this point. The contention that teacher education should be of "adequate" scope presupposes that there is a definite limit which teacher education should reach and where it can perfectly well be made to stop in order to guarantee the teacher's future career. Although a theory of this kind may have been more relevant to an earlier, less dynamic community and school system, it is quite inapplicable to present-day teacher education. It is impossible today to

accept the idea of a teacher, once he has completed his training, being fully equipped for the rest of his career.

The laudable demands for prolonged education have to be balanced against a number of important considerations in favour of a brief period of education, including major economic considerations. Thus the determination of the duration of teacher education is pre-eminently a question of striking a balance where also the relationship between pre-service and in-service training must be observed.

3.3 The problem of integration

The question of the duration of teacher education cannot be segregated from the question of the internal structure of that education. Time will be saved or lost according to the way in which different parts are co-ordinated. This is termed the problem of integration. Teacher education in Sweden has been divided into subject studies, pedagogics, methodology and practical training. If the latter three are fused into a single part we obtain a still rougher division which, with a certain amount of oversimplification, is taken to distinguish between theory and practice. The demand for a greater integration of teacher education presumably reflects a desire for the testing and manifestation of the value of subject studies in the context of practical application. Application then implies enabling the prospective teacher to teach what he himself has learned. Obviously an advanced integration of studies and teaching practice is doomed to failure. The practice of details and parts before the trainee has acquired a sound general view of his subject, of the subject matter involved and of the potentialities or limitations of the latter as a means to the personal development of the pupils, can easily result in mechanical and rigid teaching behaviour during the practice period. Advanced integration in this sense is also a dubious proposition because the trainee's studies would acquire a short-term objective gauged exclusively according to what was useful for the moment. A constant preoccupation with "useful" things is liable to result in a fragmentary view of the subject and in a simplification of issues. This in turn not only can lead to a treatment of subject matter which is inadequate for the pupils in the practical situation, i.e. to unfruitful teaching methods, but it also impedes the prospective teacher's own studies. Moreover it should be borne in mind that courses as referred to in school curricula and textbooks are very diffusely delineated and their content is constantly liable to change.

On the other hand it has proved unprofitable to spend years of theoretical study in complete isolation from the reality for which that study is intended. Often the student feels a need to see what theoretical things look like in the context of practical teaching. Certain forms of goal-related teaching practice could probably be very useful in helping to elucidate the purpose of the prospective teacher's studies. Moreover, most subjects are made up of relatively well-defined parts whose application to the practical teaching context the trainee may wish to discuss before going on to a new phase of studies.

As was mentioned earlier, subject teacher education at university and class teacher education were formerly diametrically opposed to one another. Training college education has evinced too much of the integration described here, while subject teacher education has included too little of it. From their separate starting points, the two forms of education have converged on a via media, but a great deal still remains to be done before the right balance is struck. The same issues as apply to the integration of theory and practice apply to the various subdivisions of theory and of practice

respectively. The former often increases in scope the higher the school level concerned. Savings of time by means of rationalized subject integration therefore have been possible more often in subject teacher education than in class teacher education. Of importance in subject teacher education is that the subjects must not be viewed in isolation from one another. If studies are planned for the subject combination as a whole, this can prevent unnecessary duplication (e.g. general phonetics in the study of languages) and will make it possible for closely related features of different subjects to reinforce one another (e.g. history, the history of religion and the history of art), for subjects to be taken in the appropriate order (e.g. chemistry before biology), for subjects to be studied alternately or parallel to one another to a certain extent (e.g. mathematics and physics). In Swedish curricular work, efforts have been made to utilize every opportunity of economics of rationalization by means of integration on the above lines. This question is intimately bound up with the extent to which one feels able to steer the courses of study taken by the prospective teachers.

The four components in teacher training, subject theory, pedagogics, methodology and teaching practice have been regarded as self-evident sectors of integration. In recent years this integration has come to be discussed in a deeper sense, i.e. in terms of what has been termed the goal direction of education. Parallel studies, alternation, combination etc. are mainly concerned with the technical periphery. The main issue is for the content and design of education to bear a meaningful relation to the student's intended profession. Integration in this deeper sense of goal-oriented integration is far more elusive than the technical periphery of integration. Often it comprises brief and ostensibly unimportant elements and elucidations during the course of studies, the pedagogical side of problems being momentarily thrown into sharp relief. Quite often the teacher educator's attitude to schools and teaching means more than lengthly discourses. The teacher who has received his own education in motivating and activating forms has the best prospects of conducting teaching on these lines himself. This is the co-ordinate subject education and practical teacher education; a distinction has traditionally been made between two forms of integration:

1) the consecutive form (theory and practice separated in time) and

2) the concurrent form (theory and practice alternating with each other).

Integration has here been regarded exclusively as a problem concerning the co-ordination of theory and practice. In recent years, however, a new question of integration has arisen and has been closely debated, viz the co-ordination of teacher education and other kinds of education, e.g. for technologists, economists and public servants. According to these new requirements a prospective teacher of mathematics or languages should study his subject together with students with other ambitions than the teaching profession. It is claimed that the co-ordination of teacher education with other education within the same or adjoining subject spheres would be conducive to a subsequent co-ordination of education, vocational activity and leisure activity, which in turn would help to de-institutionalize school. But integration requirements of this kind may impede the integration of theory and practice in teacher education which was referred to above as being desirable. They may cause the prospective teacher to postpone his practical teacher training until after the completion of his subject studies.

3.4 Co-ordination of basic training and further training

To the requirements presented in the previous sections of the co-ordination of theory and practice and the co-ordination of teacher education and other education must be added a third and equally self-evident requirement of co-ordination, namely co-ordination of basic teacher education and further training.

The need for further training is dictated by the obvious fact that the education leading up to a degree or teaching certificate can never be regarded as a concluded episode in the teacher's career. The swifter the changes occurring in the school system, the more basic teacher education tends to assume the character of a general introduction. At the same time basic teacher education must invariably provide certain items of knowledge and skill which are fundamental to the teaching profession. There must always be a certain foundation on which to base subsequent training. The important thing is to avoid regarding this foundation as something definitive, for lack of a continuation will not only result in the content and forms of teaching becoming out-moded due to subsequent curricular reforms and other changing circumstances, it will also result in the teacher merely revising the school course and consequently in his basic knowledge of his subject becoming more and more restricted.

It is customary to distinguish between in-service training and further training, according to the purpose involved. The former denotes training intended to increase the ability of the teacher to work at the level and in the subjects for which his basic education qualifies him. Further training is taken to denote studies aimed at qualifying the teacher for a higher and better paid appointment. The line of demarcation between two forms of subsequent training is often indistinct.

The conviction that subsequent training is necessary is founded on the fact that every teacher needs, as a natural part of his daily work, to amplify his basic education and continually work to improve himself. Efforts in this direction are taken to involve all the educational sectors referred to above, viz subject studies, pedagogics, methodology and teaching practice. The boundary between everyday preparations and subsequent training can fluctuate. The preparation of lessons, planning, conferences and pedagogical discussions can constitute forms of continued training, just as study days and special courses can.

Continued training is an important concern of the individual teacher, but various external organizational arrangements should be made with a view to easing and promoting his continuous development. The training organization which has emerged in recent years at central, regional and local level aims at promoting this continuous training. This organization has been with us since 1964, when the National Board of Education got a special bureau for the administration of continued teacher training. The training courses are of different types, of which the following are the most frequent:

1. Short continued training courses in termtime. These usually comprise 15-20 specially designated periods and an equal amount of independent work, i.e. a total of 30-40 periods. Courses which can be organized in the form of study circles are held during the evenings in conjunction with a full or half study day when there is no regular teaching.

2. Short continued training courses during school holidays. These courses are of approximately the same dimensions and nature as those described previously. They comprise 30-35 periods held within a single week, usually in the form of a residential course.

3. Continued training courses combining elements of types 1 and 2, supra. A course held during termtime and holidays can utilize the advantages of both forms regarding questions of immediate relevance, which can be applied and evaluated by the teachers in their own classes, and a more concentrated consideration of subjects.

4. Termtime courses with depth or supplementary studies. Courses of this kind have primarily been devoted to subject studies. Thus class teachers have attended depth courses on an individual subject.

5. Further training courses for special functions in school, for instance guidance personnel and remedial teachers. The boundary between prolonged continued training courses and courses qualifying participants for higher and better-paid appointments can fluctuate.

Numbers 1-3 above are in-service training courses, mostly run during holidays without the teachers leaving their teaching. These courses are organized by regional in-service training institutes at the schools of education or at the Regional School Boards. These boards have altogether 250 in-service training consultants. Numbers 4-5 are longer courses mostly leading to higher teacher appointments. The participants here have to leave their teaching for half or a whole year.

None of these courses are obligatory. Since 1964 all Swedish teachers have five so-called study days during the school year. This type of in-service training is obligatory. It is used mostly for planning conferences in the local schools.

A means of linking continued training to initial training is a new regulation, stating that lecturers at the schools of education can share their teaching time between pre-service and in-service training courses.

3.5 Summary

The goal of teacher education is stated in twelve points. Among other things, this education must harness and inculcate an interest on the part of the prospective teacher in the individual pupils and their individual development.

The goal is said to be twofold. Firstly the new teacher education must be adjusted to the new school forms decided on in the context of educational policy and to the work procedures recommended for them. Secondly teacher education must be made a motive force in the continuing development of the school system.

The duration of teacher education cannot be determined on the assumption that it will last the prospective teacher for the rest of his career. Instead teacher education must be of such a scope as to provide a foundation for the teacher to build on.

Consideration is given to the problem of integration, i.e. the question of the extent to which the different components of teacher education, such as subject theory, methodology, educational theory and teaching practice, should alternate and be combined. A warning is given against undue confidence in the advantages of constant alternation between subject studies and practical application. Integration in the deeper sense of the term consists more in the meaningful relation to one another of different sections of teacher education.

Another important question concerns the co-ordination of basic training and subsequent training. The new teacher role presupposes a continuous maintenance and development of teaching capacity. Examples are given of different kinds of in-service training courses for teachers. A distinction is drawn in the context of subsequent training between in-service training with a view to improvement in the appointment already held and further training with a view to qualifying for a higher appointment.

IV. "SCIENTIFICALLY BASED" TEACHER EDUCATION

4.1 Retrospect

The first paragraph of the 1968 Teacher Training Act expressly provides that teacher education is to be conducted on a scientific basis. This provision is a reaction against and a step away from the older type of formalized teacher training, the spirit and content of which were based on the ideal of apprenticeship, with the means and methods of the master being authoritatively and uncritically transmitted to and accepted by the apprentice.

Until the turn of the century, teacher education was to all intents and purposes unaffected by the progress of psychology and educational theory. This was the "pre-psychological" period. Teacher education was not rooted in an empirically founded knowledge of humanity. Signs of new developments did not appear until after the turn of the century. Sweden's first university chair in educational theory was founded at Uppsala in 1910, followed in 1912 by Lund and in 1914 by Gothenburg. Uppsala University had already acquired an institution for psychology in 1902. A special M.A. degree for teachers had been introduced in 1907 and included among other things what was termed an obligatory two-month course in psychology and educational theory.

The 1914 reform of teacher training colleges made psychology part of the training of class teachers. The name of the subject was altered from "educational theory and methodology" to "psychology and educational theory". Methodology hived off to form a separate part of the training course. The 1914 syllabus specified that educational theory was to comprise "a presentation of the most important laws governing the upbringing of children of school age". But the period between 1910 and 1930 was really one of preparation for the ultimate breakthrough of development psychology. The 1937 syllabus was the first to include aspects of mental hygiene: the psychopathology of childhood and adolescence and mental health services. Further emphasis was placed on these topics by subsequent reports containing draft syllabi and by the 1961 syllabus, the last to be issued for the former teacher training colleges.

In its proposals for teacher education at schools of education, the 1946 School Commission presented a new psychology and educational theory syllabus. This gave added emphasis to the direction of educational theory, described above, towards development psychology and mental hygiene, but at the same time one can distinguish two important new lines of development, viz social psychology, sociology of education and the psychology of learning. This development is founded on the emphasis placed by the new school on social education but also on the advances made by modern sociology in the field of group research and the great interest aroused by programmed teaching and accordingly for both theoretical and practical aspects of learning problems.

Without undue simplification, teacher education in Sweden can thus be said to have passed through two principal phases, each lasting for roughly half a century. The first of these, comprising the latter half of the nineteenth century and the first decade or so of the twentieth, was characterized by the predominantly philosophical emphasis of

educational theory. This was succeeded by a progressively more psychological approach to teacher training, an approach continuing down to our own time. The radical school reforms of the present period coupled with the advent of the schools of education have brought teacher education to a new milestone in its development. The novelty lies in the more consistent application of research findings to teacher education and - perhaps above all - in the radical changes undergone by the organizational forms whereby the advances of educational theory are applied to schools and teaching.

4.2 Methodology

The transformation of teacher education from the former apprenticeship model to a scientifically-based model requires considerable effort. Clearly there is a trend away from the former and towards the latter, and it would be presumptuous to ascribe this trend to the 1968 teacher education reform and nothing else. In fact it has existed for the past half century, but it was not until the passing of the 1968 reform that the scientific basis of teacher education was clearly enshrined in statutes, organization and training content. One of the direct expressions of this new departure is to be seen in the definition of methodology as a separate part of teacher education with time allocations, personnel, premises and other resources defined accordingly.

As a rule the teacher education of yesteryear consisted entirely of subject studies. Educational theory was added to focus education more on the teaching profession, but the resultant course of teacher education was nonetheless criticized as being excessively theoretical. The reason for this criticism was above all the increasing tendency for educational theory to be based on the precepts of theoretical psychology. After 1914 the teacher training colleges distinguished between methodology on the one hand and psychology and educational theory on the other. The 1946 School Commission proposed a further reinforcement of methodology instruction by the introduction of special teacher appointments for the purpose.

The boundary between methodology and educational theory is bound to be an arbitrary one. In order to serve its purpose in the context of teacher education, educational theory must be concretized in practical connections. The criticism levelled by trainee teachers against educational theory as being divorced from the rest of their training was often due to educational theory stopping at the point where the trainees' questions begin. On the other hand the methodology incorporated in teacher education during the late nineteenth century and the early years of the twentieth could be condemned as a formalization of procedures with no particular relation to learning problems and the human psyche.

The reinforcement of methodology in recent years, above all through the measures advocated by the 1946 School Commission, has been aimed at avoiding earlier pitfalls. Increased efforts have been made to relate methodology to educational theory. As a result of these efforts and of the efforts made simultaneously to concretize the subject content of educational theory, the two separate disciplines of teacher education - educational theory and methodology - impinge on each other's domains. This is both natural and necessary. This brings us into the problem of delineating methodology as a subject. There is in fact no hard and fast boundary between methodology and educational theory. They merge into each other. When a division nonetheless has to be made, for external practical reasons, above all where the personnel factor is concerned, this continuity should be borne in mind.

The demarcation of methodology as a special sector of training with its own frames and resources can in fact be regarded as a sign of weakness in excessively theoretical pedagogics and a corresponding symptom where excessively "unpractical" subject education is concerned. Thus methodology was given the task of remedying these deficiencies, forming a bridge between subject education, educational theory and practice and of providing a basis for their co-ordination.

However, this reconciliation presupposes among other things that methodology education is based on a truly scientific basis, both pedagogically and in terms of the subject. Methodology training must contain planning for long sections of school work, the role of teaching aids, details of teaching techniques and methodological aspects. Teacher education must proceed in such forms as to provide examples of the application of the educational principles which the trainees are later to follow in the exercise of their profession. Well prepared and followed up pupil observations and method observations have become an important element.

4.3 Experiments and demonstrations

The scientific basis of teacher education must also be manifest in its practical aspects. One problem which was discussed at length during the preparatory stage of the reform concerned the state practice schools. Schools of this kind had formerly been established at each training college in order to provide prospective teachers with an organizationally and pedagogically satisfactory basis for teaching practice, which at that time was not always to be had within the regular school system of the locality surrounding the teacher training institution.

However, the position of the practice schools changed considerably during the 1940s and 1950s. Faced with the demand for more teacher education and for a greater element of practical training in that education, they were patently inadequate in quantitative terms. A number of so-called municipal or external practice classes had to be attached to the teacher training colleges. This did not present any problems, for the municipalities were no longer inferior to the practice schools directly affiliated to the teacher training institutions in terms of external resources such as tutorial personnel.

But it was not only quantitative and qualitative considerations that led to the abandonment in 1968 of the system of special practice schools. The novelty here was that classes and schools were needed with somewhat different functions, viz practical educational experiments and demonstrations of various methodological solutions. The prototype of these school units was found in the English and American laboratory schools and elsewhere. While utilizing the experimental potential of these schools, the aim was to incorporate these new, scientifically based elements in the process of teacher education. This was how the experimental and demonstration schools came into being. Unlike the earlier practice schools, these became part of the municipal school system in the training area, a resource of classes and teachers at the disposal of the school of education. And unlike the Anglo-American laboratory schools they became something more than an educational experimental resource and were closely linked to the methodological, pedagogical and practical aspects of teacher education.

This resource of teacher education represents a new principle. In its draft goals and guidelines, the National Board of Education wrote as follows:

"To promote the concretization and co-ordination of pedagogics, methodology and subject studies, one or more schools should be placed at the disposal of each school of education and both experiments and demonstrations arranged there. These schools are to be open to prospective teachers and teachers undergoing in-service training and further training. The participation of these schools in educational research and experimental activities is of extreme importance with a view to continuing successful work in the development of the school system." (Class Teacher Education. Syllabi. Part 1., 1968)

Thus the experimental and demonstration school is to help the new teacher to acquire a critical, experimental attitude to means and methods. It is to encourage the teacher to look for new and better solutions in a school which is no longer static but constantly changing and therefore in need of constant change on the part of the teacher.

4.4 Teacher education and the continuing reform of the school system

We have now considered teacher education as a consequence and a precondition of the reform of the school system and it has been made quite clear that in the ultimate analysis the goals of teacher education have to refer back to the goals of the school system.

It is important, however, not to rest content with a one-sided adjustment, i.e. a state of affairs in which teacher education unilaterally adjusts to the school system. Teacher education as such should prompt and promote measures in the continuing reform of the school system. This is in fact the true meaning of the thesis that education must proceed on a scientific basis. The Minister presenting the Teacher Education Bill (1967:4) completely endorsed this view.

"The first teachers to qualify under the new system of teacher education will remain professionally active into the early part of the next century. The school system evolved by then will in all probability differ from our own in several respects. Even if the fundamental goals remain unaltered, study routes and course content can change. There is a great deal to suggest that the role of the teachers and the forms of their activity are among the features which will change most radically. It is impossible today to undertake any detailed forecast of those changes, but a number of tendencies can be discerned. The task of the teacher as a supplier of information will be greatly reduced and will be taken over by new, improved education aids. These will no doubt also make it possible for the teacher to be relieved of a considerable proportion of the work of knowledge testing. Traditional classroom teaching, which has already begun to disappear from comprehensive school in certain respects, will probably be replaced gradually by other work procedures. Perhaps the very system of division into classes will also be dispensed with. At all events the class as a teaching group will to a great extent be replaced by more flexible student groupings of varying size and composition. There are many reasons for such a development. First and foremost I would point to the need for greater consideration of the needs and interests of the individual pupil, which in turn calls for more differentiated forms of activity. The same inference can be drawn from the need for a greater qualitative and/or quantitative return on investments of personnel and capital in the educational sector. Clearly we can never construct a system of teacher education preparing the teacher for change in the sense that he will from the very outset be familiar with all the new syllabi or forms of activity which he will encounter in the course of his teaching career. On the other hand

we must train teachers in such a way as to condition them for change. This does not only mean that they must be receptive to innovations in school, it also means that they themselves must produce changes by encouraging, testing and bringing about changes. Thus it is of the utmost importance for the new system of teacher education to be made part of the continuing process of school reform and for that system to inculcate a willingness and ability on the part of the teacher to reappraise and constantly improve the working situation in school, courses and subject matter. The teacher must also be given the capacity of critically appraising phenomena and problems and of following educational research and development work. In this sense teacher education should be placed on a scientific footing. This is not to say that every teacher can be expected to play an active part in such scientifically based educational research, but every teacher should be able to keep in touch with the progress of that work. Teacher education must equip teachers to do this."

4.5 Educational research and development

Perhaps the clearest expression of the placing of teacher education on a scientific footing is to be found in the direct attachment to this education of educational research.

The 1946 School Commission already proposed that the schools of education should develop into institutions of educational research. The Riksdag endorsed this proposal and the new schools of education in Stockholm, Malmö and Gothenburg were given educational research institutions led by professors of educational research. The Teacher Training Committee also proposed in 1965 that the schools of education be made complete, i.e. include class teacher and subject teacher training and also conduct educational research under the leadership of a professor of educational theory. It was proposed that the class teacher colleges which the Committee assumed would exist for a transitional period should be attached to the nearest complete schools of education.

This proposal was not entirely seconded by the Riksdag. Educational research was confined to the six largest schools of education and the links between these and the smaller schools of education remained very weak.

Under the Teacher Training Act, lecturers in methods as well as teachers of educational theory have to participate in the educational research conducted at schools of education. In its draft goals and guidelines, the National Board of Education had the following to say concerning the relationship between teacher education and research:

"At the complete schools of education there are scientific institutions of educational theory which among other things also have to assist other schools of education in the planning of research and development. Even though not all teachers can be expected to play an active part in scientifically based educational research during their future careers, their teacher education must provide them with an elementary knowledge of educational theory. It must also equip them to follow and keep themselves informed of educational research and development work, its results and working methods, and create in them a critical attitude to phenomena and problems. In this way it is also to make the trainee teacher amenable to educational renewal. Teacher education is to inculcate a willingness to test new methods and ideas and to adjust teaching and work procedures to social development and the progress of educational research." (Class Teacher Education. Syllabi etc. Part 1, 1968)

The broad scope of teacher education since 1968 has made it difficult for the individual trainee to make the relation to educational research obvious. There can be no denying that educational research has been greatly reinforced in recent years and

that this reinforcement has been more the work of the educational research institutions of the schools of education than of the universities. A series of practical problems have been encountered, however, in apprising prospective teachers of this research, still more in enabling them to plan an active part in it.

Even if the teacher trainees' own direct contacts with educational research are few and superficial, the very co-existance of training and research within the same institution is a stimulation to both. The reasons for this are mainly two. Firstly educational research has during the last two decades become closely linked to school problems. Secondly research projects, development projects, local innovation activities and in-service teacher training often become interconnected, the same personnel being engaged in different kinds of activities. The collaboration of research and training has to face and overcome a lot of difficulties. Successful cooperation is maybe still more an exception than a rule, but new forms of collaboration are continuously practised and developed.

4.6 Summary

The 1968 Teacher Education Act provides that teacher education must be scientifically founded. This provision is to be seen as a reaction against earlier training, which in spite of a series of improvements in recent years still basically adhered to what is referred to in the chapter as the apprenticeship model, whereby training comprised the transfer from older teachers to new teachers of means and methods of universal validity.

Instruction in educational theory has successively acquired new elements such as development psychology, mental hygiene, the psychology of learning and social psychology during the half century since it first began to be founded on an empirical knowledge of humanity.

The reform of teacher education has led to a consistent distinction between educational theory and methodology through the establishment of special methodology appointments. This separate subject, which can refer to special methodology and subject methodology and also to general methods, is designed to reconcile the differences often referred to previously between subject studies, educational theory and practical application. One of the prerequisites for this being accomplished is for methodological instruction also to be based on an empirical scientific foundation.

Another means of relating teacher education to empirical psychology and methodology has existed since 1968 in the form of the experimental and demonstration schools, where experiments and demonstrations are to be conducted as a part of teacher education with a view to the co-ordination of theory and practice.

An additional means of putting teacher education on a scientific footing is the educational research and development which has been established at the schools of education since 1968. It is part of the duties of lecturers in methods and educational theory to take part in this research and development work.

V. RESEARCH AND DEVELOPMENT IN CONNECTION WITH TEACHER EDUCATION

5.1 The link between teacher education and school research

It is clear from what was said in the previous chapter that the improvement of teacher education is closely connected with the improvement of education research and of the links between that research and teacher education. The 1940 School Commission engaged the country's professors of educational theory to provide a scientific elucidation of the differentiation question. Similar research contacts were established by the 1946 and 1957 School Commissions, which also carried out comprehensive surveys and systematic analyses of particular problem sectors. The 1960 Upper Secondary School Committee and the 1960 Teacher Education Committee worked on similar lines. Committee research has continued since then, although its relative share of education research has presumably declined.

Another comprehensive field of activity having an important bearing on educational research and development was the experimental activity during the 1950s with the new nine-year compulsory school. This activity was reported annually to the Government and Riksdag and was also made the subject of a summary report at the end of the experimental period. Although only a small proportion of this experimentation took the form of controlled experiments, it paved the way for the work procedures applied in educational research and development today.

The experiments of the 1950s were centrally directed by a special experimental department at the National Board of Education. When this department was abolished in 1962 in connection with the introduction of the comprehensive school, a new bureau was set up at the National Board to deal with matters concerning educational research and development. This bureau was placed under the Teacher Education Department, among other things because research activities were to be conducted at the research institutions of the schools of education.

These activities are conducted in the form of projects for which an annual allocation is made by the Riksdag without any detailed specification. The budget proposals of the National Board of Education, by contrast, are quite detailed. Riksdag resolutions usually give a brief indication of certain problem sectors meriting particular attention. Thus in recent years attention has been drawn to the importance of investigating pre-school matters and matters of adult education. Mention has also been made of the support needed by low performers and of the problems of vocational pedagogics. A major new problem sector concerns the instruction and education of immigrants.

Teacher education as a whole, i.e. not only its personnel but also premises, equipment, training programmes and external and internal organi ation, is here designed to lay the foundations of a lifelong preparedness for innovation on the part of the trainee. Previous teacher training, with its emphasis on model lessons, visits to lessons and formal teaching exercises tended often enough to produce an uncritical imitation of ready-made methods, regardless of the aptitudes and needs of the pupils.

This model has gradually given way to a form of teacher education based on development psychology and the psychology of learning, in which goals, methods and results are appraised and new methods constantly being tried out. If teacher education is to proceed in such a spirit of critical exploration and experimentation, it should be combined with educational research and development. It is not enough for small gobbets of information concerning research and development to be appended tc an otherwise traditional form of teacher education. Teacher education as a whole should be impregnated with the relation of goals, methods and results to personal evaluations and viewpoints. This was one of the fundamental tenets of the 1968 reform of teacher education.

The aim of teacher education being "scientifically based" is promoted also by the concentration of educational research in the schools of education. The latter have been allotted research appointments. The institutions of educational theory are to attend both to research and to the teaching of educational theory to prospective teachers. This combination is designed to guarantee an immediate transfer of research findings to teacher education. The institutions of educational theory have also been allocated considerable resources for project research. For research purposes they are prior to other subject institutions at the schools of education.

5.2 Research and development

The educational research and development which it has been desired in recent years to co-ordinate with teacher education and in-service teacher training, has expanded rapidly since 1962. The following table shows the allocation of resources in 1973/74 for the research and development centrally administered by the National Board of Education, which is also the central authority responsible for the administration of teacher education.

Educational Research and Development,
Commissioned by the National Board of Education 1973/74

Research and Development Area	Thousand Skr	Thousand US $ xx)	%
1a Pre-school education	1,080	243	4.48
1b Compulsory education x)	5,250	1,181	21.76
1c Upper-secondary education x)	3,530	794	14.63
1d Adult education	2,750	618	11.40
1e Teacher Training	2,830	636	11.73
1f General and Over-all Research and Development	5,735	1,290	23.77
2 Planning, Follow-up studies, information	1,950	438	8.08
3 Production support	1,000	225	4.15
Total	24,125	5,425	100.00

x) Including vocational and technical training.
xx) 100 Skr = 22.50 US $.

The total of Skr 24 million does not represent the entire annual amount spent on educational research, only the amount spent on that portion of educational research which takes the form of commissioned research and is paid for out of the National Board of Education's annual allocation for educational research and development. Thus it does not include fixed research resources such as salaries for permanent researchers and the cost of maintaining premises. Nor does it include research grants awarded by other funds and institutions besides the National Board of Education. But the above amount allocated by the National Board of Education constitutes a large proportion of the total resources, and it also pays for the research to which attention is primarily to be given in the context of teacher education. Research and development in each of the six programmes for different school sectors has been divided into seven subdivisions as follows:

a) goals,
b) instruction,
c) school organization and the school environment,
d) pupils,
e) school personnel,
f) teaching materials,
g) evaluation.

Obviously the different problem sectors cannot be completely divorced from each other, and individual projects can often involve several of them. It is these activities and their results which have to be transmitted to teacher education. Thus contact has to be maintained with educational research as a whole, not only with the educational research having a direct bearing on teacher education. We shall be returning to the latter variety of research in a later chapter.

5.3 Curricular work at the schools of education

One way of establishing contact between research and teacher education is to allow research and development findings to exert a direct influence on the trainees' own education. The experience of recent years in the field of educational technology has profoundly affected the curricula and forms of training of the schools of education. This connection is explained to the trainees. Efforts are also made, by means of course evaluations and studies, to provide for feedback throughout the whole course of teacher training. The experience of judging methods and results in relation to pre-defined goals and of having to define and operationalize goals, methods and results to this end does a great deal to create receptiveness and amenability to subsequent research findings.

5.4 The institutional educational research resources of the schools of education

The educational research institutions co-operate organizationally with the educational research institutions of the universities. These institutions have a host of tasks, including the following:

1. Basic pedagogical training of various teacher categories.
2. Academic pedagogical training up to M.A. degree in collaboration with university institutions.
3. The training of educational researchers.

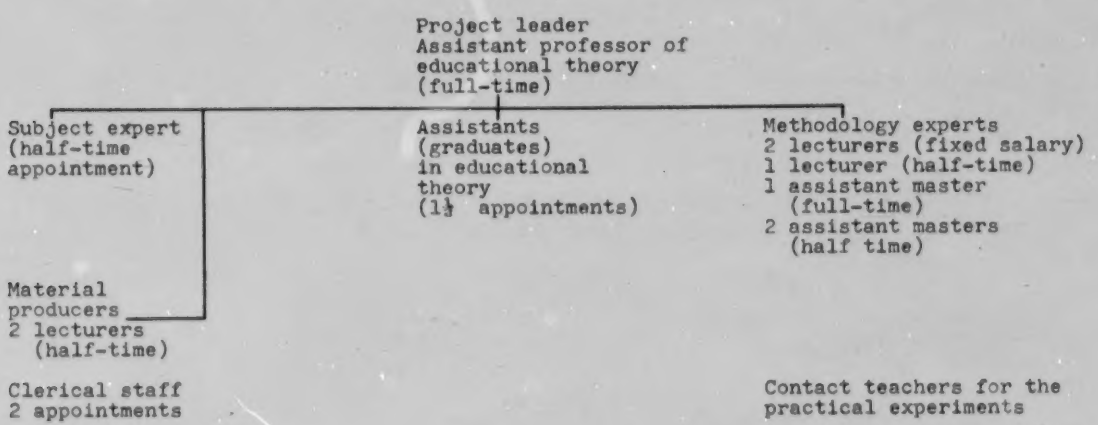
4. Participation in the work of the experimental schools.
5. School research.
6. The diffusion of information.

To perform their tasks the institutions are equipped with resources of various kinds. Personnel resources are of two kinds: a) persons holding permanent appointments for teaching or research, b) persons appointed by means of allocations for specific research purposes. The staff of each of the institutions of educational theory, service staff included, totals approximately 100 persons.

Most of the institutions have developed a basic research organization of statisticians, punch card operators, programmers, administrative staff, clerical and accounting staff and production staff.

School research at the schools of education is principally based on the funds allocated for specified research tasks (commissioned research). Besides the allocations from the National Board of Education, certain funds are also received from the Swedish Social Science Research Council, the Office of the Chancellor of the Swedish Universities, joint Scandinavian bodies and special foundations.

Nowadays research usually takes the form of team work in projects, each research project engaging personnel according to its particular character. Interdisciplinary research groups are common. As a rule a project will continue for 3-5 years. The following diagram, referring to a project on methodology in the teaching of German, will serve to illustrate the organization of a research project.



At major research institutions projects are grouped into certain sectors, these sectors co-operating, exchanging experience and often employing the same scientific advisers. Examples of such sectors from a research institution include a) subject-oriented research, b) pupil-oriented research, c) teacher-oriented research and d) organizational and environmental research.

The various school research institutions publish their own series of reports for various target groups presenting their research findings. As a rule at least one of these series will be published in English, sometimes also in German. Only a limited number of research reports are published in major international scientific journals.

5.5 Summary

Most educational research and development in Sweden nowadays takes the form of commissioned project research. The National Board of Education is the main sponsor, distributing annually a development allocation from the Riksdag. From modest beginnings twelve years ago, this allocation had risen by 1974 to some Skr 24 million ($5.4 million).

This allocation is divided between six different programmes, viz a) pre-school education, b) compulsory education, c) upper secondary education, d) adult education, e) teacher training and f) general and overall questions. Certain funds are also used for planning, follow-up studies and information.

Within each of the above six programmes, research and development is divided into sub-sectors according to the nature of the issues involved, e.g. goals, instruction, school organization and environment, pupils school personnel, teaching materials and evaluation.

The greater part of this development allocation is distributed to the behavioural science research institutes of the universities and schools of education. These institutions also receive research grants from other sources, e.g. the Swedish Social Science Research Council, the Jubilee Foundation of the Bank of Sweden and the Office of the Chancellor of the Swedish Universities.

The educational institutions of the six large schools of education now account for the greater part of this commissioned research. These institutions are also responsible for the teaching of educational theory to prospective teachers and for the training of researchers in educational theory. They also take part in experimental and demonstration activities and in the diffusion of information concerning research findings.

The institutions have both permanent staff and temporary staff whose salaries are paid out of research allocations. The basic organization of a research institution today includes, apart from the actual research staff, statisticians, programmers, administrative staff, production staff etc.

Each project has a project leader and a limited number of assistants. The tutor or "scientific leader" is invariably a professor or assistant professor.

VI. RESEARCH AND DEVELOPMENT WORK ON TEACHER EDUCATION

The previous chapter showed that some 12 per cent of educational research and development deals with aspects of teacher education. In this chapter we shall give examples of the scope of this research and development work and of the results it has had.

6.1 Research into the goals of teacher education

As early as the 1950s a number of surveys were carried out in Sweden to investigate teachers' attitudes to the new comprehensive school, its goals and working methods. In one of these, carried out by S. Marklund (1960) on behalf of the 1957 School Commission, a study was made of the attitudes and expectations of prospective teachers prior to service in the new school. The study included all trainee teachers concluding their training in the spring term of 1959. Most teachers were negative in their attitude to the new school, above all to the so-called practical pupils, and preferred the traditional school system. Prospective upper level teachers were more negative in their attitudes than prospective class teachers. At the same time the trainees were given a test to measure their knowledge of the new school, its goals and methods. The results of this test were correlated with the trainees' attitudes. Little knowledge and a negative attitude belonged together, as did close knowledge and a positive attitude.

The 1968 Education Commission, U 68, has published a polemical outline of some of the major goals of higher education in modern society (1969). These include the following:

- personality development with particular emphasis on two aspects, viz.
  - critical thought.
  - democratic attitudes;
- communication skills;
- common frames of reference;
- study and working habits;
- special preparations for particular functions in working life.

Leaving aside those general goals of higher education which should also apply to teacher education, we shall here concern ourselves solely with what are referred to above as "special preparations".

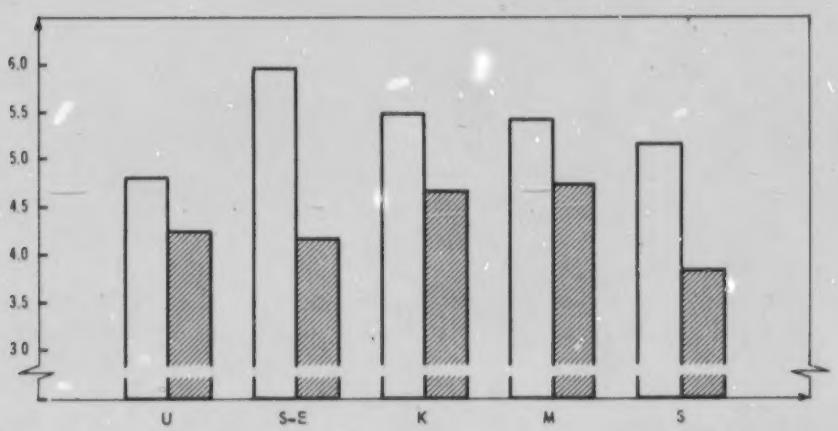
In certain respects the goals of teacher education are identical with the goals of higher education generally (supra). In other respects teacher education has its specific goals. These specific goals can be defined from various angles. One approach is to try to determine the demands and expectations confronting the teacher today and in the immediate future. This analysis has been undertaken by B. Gran (1973), Ch. Fritzell (1973) and G. Löfqvist (1969, 1971) in a research project entitled PIL, using sources of information of various kinds:

1. Official documents, e.g. curricula, syllabi and central guidelines.
2. Interviews with various peripheral groups of persons, e.g. head teachers, parents and pupils, and with various teacher groups.
3. Questionnaires addressed to "producers" and "consumers" of teachers (i.e. teacher educators and head masters respectively).

Text analyses, interviews and questionnaires of this kind have yielded a large pool of opinions showing how different people view the tasks of school generally and those of the teacher in particular. A structural analysis of the questionnaires has shown that the functions of the teacher can be described in five broad categories:

- the tasks of the teacher in promoting the social and emotional development of the pupil (socio-emotional factor);
- the tasks of the teacher in promoting the development of the pupil's knowledge (cognitive factor);
- tasks and skills in relation to materials and methods in teaching (method-material factor);
- work together with other adults inside and outside school (colloboration factor);
- tasks concerned with one's own development and that of the school (development factor).

All respondents attach the greatest importance to the socio-emotional factor. Relatively speaking, those receiving teachers (local education authorities, head masters etc.) attach greater importance to this factor than the "producers" (i.e. universities and training colleges). This relation becomes still more apparent if one compares the importance attached to different functions and assessment of the degree to which they are catered for by present-day teacher training.



These factors are represented by the plain columns in the sketch. The shaded columns denote the degree to which teacher education caters for these demands.

U = the development factor, referring to measures taken by the teacher for his own development and that of the school.

SE = the socio-emotional factor, referring to measures taken by the teacher for the social and emotional development of his pupils.

K = the cognitive factor, referring to measures taken by the teacher to develop the knowledge and skills of his pupils.

M = the method-material factor. Above all this describes the requirement that the teacher use the appropriate teaching materials and practise measures of teaching technique.

S = the collaboration factor, referring to the teacher's communications with head teachers, other teachers, parents etc.

Notice the great difference regarding the socio-emotional factor and the collaboration factor.

The diagram also shows that teacher education should devote more importance to the development of communication (group dynamic relationships).

Research under the PIL project has also shown that the subjects endorse the goals of the Swedish school system in all important respects. They also feel that Swedish schools can be greatly improved by an improvement of basic teacher education.

The same results were obtained from a major survey carried out by the Swedish Union of Teachers, the largest union of teachers in the country (L.E. Klason, 1971). The teachers endorsed the goals of the school system but often felt that they had not been given the resources and facilities to achieve them.

The great period of Swedish school reform can now be taken as concluded. The task that now remains is concerned with a process of inner consolidation and development. The Government Commission on the Internal Work of Schools (Swedish abbreviation SIA) is to be seen as part of this process. This Commission was appointed by the Government in 1971 following a long and intense debate concerning the realization of the intentions of the educational reform on the classroom and in the programme of studies of the individual pupil. The task of the Commission is to review the whole spectrum of the internal work of schools. The Commission's proposals are to be submitted in 1974, but it has already outlined some of the courses of action which it intends to recommend, viz:

- a more open school with still closer contacts between school and society at large;
- a broader school day with school assuming responsibility for more than purely instructional tasks;
- a more liberal use of resources concerning the deployment of teachers and other personnel as well as teaching materials;
- an expansion of the practice of work teams.

To accommodate these changes the Commission envisages first and foremost a broadening of the training received by head masters. Changes have also been predicted in the work situation of teachers. Changes of this kind have already occurred in the context of various developments outlined below, and research and experimentation are in progress with a view to the adjustment of teacher education to new tasks and requirements.

6.2 Research into the new roles of the teacher

Teacher training also tries to fulfil the demands which will be made of the teacher in the future. Much work has been done in Sweden in an effort to grasp the development of education. The new curricula in Sweden for the nine-year compulsory school and the upper secondary non-compulsory school have already put new demands upon the teacher. G. Löfqvist (1971) has found in a study that there are certain aspects in the new school curricula of relevance to teachers on which particular emphasis is laid, e.g.:

- to be more objective;
- to co-operate with pupils;
- to plan for individualized work;
- to teach matters not specific to traditional subjects, for instance sexual knowledge, protection of the environment, international questions etc.;
- to be responsible for the total development of the pupil.

Less emphasis is, according to these new trends, put on methodological knowledge and certain traits and attitudes.

B. Gran et al. (1973) have made two separate studies in order to grasp the development of the teacher's functions. In the questionnaire study mentioned before it was found that those aspects with high priority to-day are expected to acquire even greater prominence in the future. The socio-emotional functions of the teacher as well as his co-operation-communication tasks assume a heavier load in a futuristic perspective. In part III of this volume many of the experimental and development projects in schools are analyzed in terms of their effects on the teacher's functions. These projects represent development toward:

a) a more student-centered instruction by
   - more use of individual learning programs,
   - construction of new teaching aids;
b) an emphasis upon the student's total development by
   - more opportunities for the students to take an active part in the planning of the work,
   - more contacts between school and society at large,
   - the engagement of non-pedagogical personnel within the school,
   - the development of a more stimulating physical and social school environment;
c) an effort to satisfy the continuity of individual development by
   - co-operation between different levels in the school system,
   - work with groupings of a non-graded type;
d) special consideration to students with handicaps or certain needs
   - an effort to integrate the handicapped students within a natural social setting by means of a special help program,
   - construction of special teaching aids for handicapped students;
e) the student's own active engagement in the planning of school activities by
   - developing a school democracy program;
f) a problem-centered instruction by
   - co-operation between different subjects within themes and units.

It has of course not been possible to realize these positively formulated proposals without difficulties for other functions within the school. Conflicts or different opinions have found expression. Even the six trends listed above are often in opposition to each other, which involves difficult adjustments.

These development projects have had many implications for the teacher's profession. They are more fully analyzed in the documents mentioned above. Here we take up only five aspects of special relevance for teacher training:

1. Differentiation and integration.
2. Student-centered, continuous teaching-learning process.
3. Responsibility and decision-making.
4. Relation between primary and secondary functions.
5. New attitudes and new values.

Differentiation is a process where parts of the teachers' functions for students' care, handling teaching aids and tasks in connection with the students' leisure time activities are taken over by other pe sons and specialists. There is also between the teachers a differentiation of separate tasks. This process of differentiation is accompanied by a process of integration, where the teacher has to integrate all the very complex duties and jobs done by many persons. This means a large contact area for every single teacher.

The stress upon a continuous, student-centered teaching-learning process also means contacts with many specialists and perhaps also with teachers on other school levels. The teacher is more concerned with diagnosis of pupils, planning, constructing and evaluating individualized learning programs and working together with the students.

These experimental projects also show that the teacher has to make his decisions more together with other adult persons and also to share a widened responsibility. It also means, however, that he has to give responsibility to the students.

In those projects where the teachers are working in teams and with a more democratic strategy within the school systems, however, it means relatively more of such secondary functions as co-operation and administration.

In a study by Ch. Fritzell (1973) it is pointed out that the most needed attitude change by teachers in order to meet the problems in the schools is to develop new attitudes to educational innovations and debate. This change of attitude - from the experience of the experimental work - also includes new attitudes to colleagues and their work, to new working methods and to other school levels and subjects other than the teacher's own.

K.G. Stukát (1971) has made another analysis of investigations in recent years with reference to expected changes in the teacher role, associated with two trends, namely individualized instruction and educational technology.

According to Stukát's expectations, the teacher working with systems based on such principles should be more involved in:

1. Individual contacts with the students
2. Diagnostic and evaluative activities
3. Prescriptions of learning activities and materials
4. Planning and organization
5. Preparation of instruction
6. Co-operation with other staff

7. Counselling and guidance
8. Supervision of students working independently
9. Small group tutoring
10. Stimulating, motivating students, providing positive feedback
11. Higher-order cognitive, heuristic teaching.

The teacher should be less involved in:

12. Contacts with the whole class
13. Presenting factual information, drill-practice activities
14. Routine managerial tasks
15. Providing negative feedback
16. Talking (total amount)
17. Talking (in relation to student talking).

In the 14 research reports which Stukát referred to, he found clear empirical support for points Nos 1, 2, 3, 8, 12, 15 and 17. He found probable empirical support for 4, 5, 6, 10 and 13. As regards the others, his expectations were not supported or there was no empirical evidence available.

6.3 New means and methods in teacher training

We have devoted considerable space to new teacher roles. This is because many of the new trends within teacher training have developed in a bid to cater for these new needs.

New methods, activities, materials and organization in the teacher training have been developed in close relation to research projects. It is possible to see certain trends in this development. Some of the most prominent characteristics of these trends may be summarized as follows:

- a strong tendency to integrate theory and practice and give the students more concrete experiences;
- a stress on personality development and self-realization;
- more stress on group dynamics;
- opportunities for the students to take responsibility for their own working situation (student democracy);
- a development towards thinking in terms of educational systems and terminal behaviour;
- more integrated units in the curriculum.

a) Integration of theory and practice and more concrete experiences has been developed partly by means of closed circuit television (CCTV). Most Swedish teacher training institutes have facilities for CCTV. Some of them are fully professionally equipped with materials and studios.

B. Gran (1973) has summarized ten years of CCTV research and development work in Malmö, showing that teachers as well as students are of the opinion that CCTV is of great importance for teacher training. Of the utmost importance is the use of CCTV as an aid to prepare for practical observations and as a demonstration medium in methodological matters according to these studies. The teachers themselves find CCTV more effective than do the students. Those students with more experience of CCTV are more positive than those with little experience.

J. Naeslund (1971) reports in studies from Stockholm that the student teachers find pedagogics and methods more meaningful and better integrated with practice when illustrated by means of CCTV. He has also investigated the possibility of replacing direct classroom observations by CCTV observations. More than 50% of the teacher students find CCTV better than, or as good as, direct pupil observations. Other experiments show, by means of CCTV, that subjective judgments of teacher performance in teacher training - at entrance interviews and judgments at the end of the training - are not very reliable.

B. Gran et al. (1973) in Malmö have studied the use of video-recorded simulator tests. By this is meant short situations which are interrupted at a moment critical for decision-making concerning choice of teaching methods and choice of material. The research results have been so promising that new tests have been developed for special training in decision-making and for evaluation of the students' skills.

b) CCTV is also used for the purpose of personality development and self-realization. B. Bierschenk (1972) has studied the problem of self-confrontation in an experimental situation by using micro-lessons and video-recording. He found few if any effects on the students' skills in perceiving themselves or others from the use of CCTV. But, interestingly enough, he found no difference resulting from traditional tutorship either. He concluded that in order to be effective the self-confrontation technique requires systematic training and some experience. On the other hand the students found the technique very valuable to themselves, as did the teacher trainers. In a more restricted area - for training in oral communication - the results were fully positive.

H. Dahlgren and E. Zachrisson (1971) in Gothenburg have shown that student teachers are very positive to video-recording their own lessons. J. Naeslund (1971) in Stockholm found that micro-teaching makes the student teachers more confident before their first training in classrooms. C. Brusling (1973) has used CCTV and micro-teaching in order to train the students' skills in observing verbal interactions. He also found that self-confrontations had immediate effects upon the student teacher's behaviour, but these effects disappeared later on.

c) More stress is laid upon training in group behaviour. There is a strong wish all over the country to start courses in group dynamics. These courses are of several different types, ranging from merely training skills in analyzing the behaviour of others to using the group as an aid for problem solving and therapy. Within some research projects, programs have also been constructed for role playing. Questionnaires have shown very positive attitudes on the students' part. There is so far little scientific evidence of how effective these group dynamics and role playing programs are. L. Wiechel (1970) has developed role playing techniques to stimulate:

- self-knowledge and self-thrust;
- personal behaviour before others;
- adequate decision-making in communication situations;
- instruction techniques.

These role playing techniques have been found successful in certain training areas.

d) There has been a strong trend towards more student-democracy within teacher training institutes. Within these institutes there are many formal groups of teachers and students who are responsible for such things as curriculum planning, evaluation methods, the students' working situations etc.

P. Idman has studied many of these problems. He found (1971) that most of the students take little part in the activities of student unions. Communication between the students in the formal groups and the whole student collective was infrequent. Co-operation between teachers and students was better, but the students wanted more influence on many things within the schools of education. In general the students had rather little insight in the decision-process within the schools. In another study P. Idman (1972) pointed out that, in the beginning of their teacher training, the students were positive to most of those matters related to student-democracy. They found things functioning rather well. But after half a year they were more negative and demonstrated more criticism. Idman also found that there was a rather high correlation between attitudes to student democracy and such personality traits as rigidity-flexibility.

If there was some doubt as to how well student-democracy may function at organizational level there was evidence that its effect was good at curriculum level in the study group. In an experiment in Gothenburg L. Larsson et al. (1973) worked with "self-steering" groups which were responsible for their own studies within broad frames. The students are very positive to these working methods. Activity in the groups was high, but co-operation within different groups varied. With the KUL-project, an experiment with group discussions of a similar kind was run during the subject teachers' practice term. It was possible to give students more help for their classroom work by these group discussions. The tests showed that the students' own self-evaluation tended to increase but that the more authoritarian and aggressive thinking also increased in this group.

e) In several schools of education and in different subjects short mini-courses or other sorts of clearly defined method-material systems were developed within certain parts of the curriculum. In some instances these were of a self-constructed and self-controlled nature. Courses in educational statistics were examples of this. The mini-courses that Stukát has taken over from the U.S.A. and tried out in Sweden have a clearly defined purpose.

f) Much effort has been expended by Swedish teacher trainers to make experiences more meaningful by a more integrated teacher training curriculum. In some training institutes this has led to organization of the teachers in teams and in some instances also to a more or less totally integrated course, where there is no real difference between pedagogics and subject methods. According to studies by G. Löfqvist (1973), the students showed positive attitudes to these programmes.

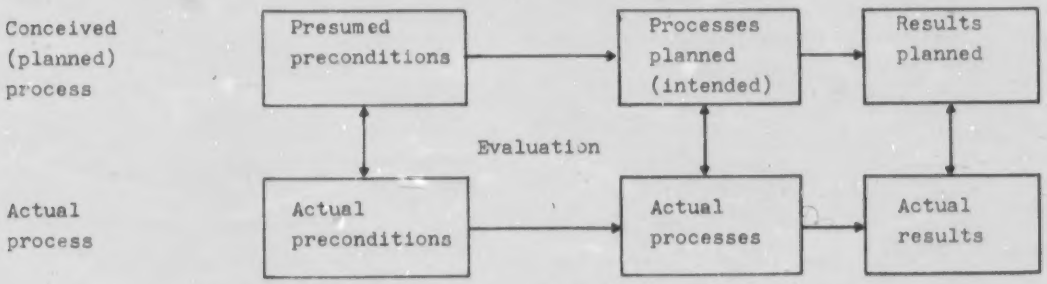
6.4 Analyses of the teacher education system

Previous teacher education research has been almost exclusively concerned with the success of the individual trainee in his training. Moreover it has also been of a predominantly summary character, i.e. measurements have for the most part come at the end of training. In recent years there has been a shift of emphasis from individual trainees to the system of teacher education as a whole. At the same time attention has come to focus on the processes of teacher education, not merely on its terminal results.

Certain technical aids have done a great deal to increase the possibilities of studying how the individual trainee functions, e.g. in teaching situations. Television

techniques particularly have provided radically new opportunities of registering teaching processes and processes of interaction. These techniques have been utilized, for example, in experimental micro-lessons at the Gothenburg and Malmö schools of education. Teacher research and teacher education have also derived valuable information from studies of the teaching process and teacher-pupil interaction at individual schools. Under the DPA project, K.G. Stukát et al. (1971) have evolved exact registration techniques for the description and interpretation of these video-recorded lessons. Several researchers in Malmö (A. Bjerstedt, 1973) have studied processes of interaction between teachers and pupils by means of telerecorded work situations.

In recent years, however, teacher education research has concentrated on systematic aspects. An evaluation model connected with cybernetic principles may be useful as a means of illustrating the direction taken by research. Teacher training is denoted as a system with three components.



The KUL projects (1972) led by S. Marklund and based on the Stockholm (class teacher training) and Linköping (subject teacher training) schools of education have hitherto covered above all the first two components of this process, i.e. plotting the preconditions and measuring the actual process. All fifteen schools of education in Sweden are included in these studies. An entire year group of prospective class teachers (3,600 approximately) and subject teachers (2,000 approximately) are being followed up throughout their training. Three types of variables have been analysed under these projects:

a) frame factors and processes within the schools of education;
b) attitudes and expectations on the part of the teacher educators;
c) the backgrounds and expectations of the prospective teachers.

The process variables include, for example, educational planning, influence and information; education content and matters concerning co-operation.

The systematic evaluation includes among other things comparisons between larger and smaller schools of education and between educational programmes for different teacher categories. The study also includes questions concerning the balance between the various main components of teacher education, i.e. general subjects, specialization, educational theory, methodology and practice.

As part of the KUL project, T. Erasmie (1972) has made a study of the social background of trainee teachers with combinations of scientific subjects. To this end he has employed the traditional division into three social classes based primarily on paternal occupations. Comparisons have been made of the distribution of trainees over social class I ("high"), II ("middle") and III ("low").

	Social Class (%)		
	III	II	I
Trainee subject teachers	22	60	18
Trainee middle level teachers	32	44	24
Trainee lower level teachers	27	45	28
University students	21	37	42
All 20-year-olds in Sweden	50	39	11

As can be seen, a large proportion of trainee teachers come from social class II; this is particularly the case where prospective subject teachers are concerned. A study has also been made of reasons for choosing the teaching profession. Generally speaking the trainee teacher applied for teacher education because:

- he decided on a teaching career at the very beginning of his university studies;
- he is interested in his subjects;
- he is interested in teaching;
- he is interested in children and young persons;
- he appreciates the long holidays.

6.5 Balance between different components of teacher education

Teacher education can include many different components, each of which can be evaluated separately. In section 6.3, supra, a description was given of new forms of activity and organization in the field of teacher education, each of them comprising parts of the system. Teacher education comprises four distinct parts, viz subject studies, educational theory, methodology and practice.

The results of education are dependent on:

- the scope of these four components and the balance struck between them;
- their sequence;
- their co-ordination;
- the educational background of the teacher educators.

Some of these questions will be considered here in the light of Swedish teacher education research.

1. Teaching practice: Hitherto the education of class teachers and subject teachers has included a complete term of teaching practice which has either concluded the course of teacher education or has come in the last term but one. During this term the trainees have been given more or less sole responsibility for their teaching, though they have had the services of a tutor. A change is to be made in this respect in that the duration of teaching practice is to be reduced somewhat and a more express division of teaching responsibility effected between the tutor and his trainee.

B. Angel (1972) followed the education of some 100 prospective class teachers and has found a positive development during their education towards the goals which have been given priority in that education, for example:

- less self-justifying
- more constructive
- more conscious of pupil welfare.

During the practice term, on the other hand, they become:

- more domineering
- more prone to aggression
- less tolerant.

Thus the term of teaching practice does not appear to have a favourable influence where the formation of attitudes is concerned. Probably its greatest importance is connected with pure method and routine practice in the profession. True, the majority of trainees are satisfied with their term of teaching practice, but as many as 20-30 per cent express dissatisfaction. This applies both to class teachers (B. Angel, 1972) and to subject teachers (S. Almroth, 1973). A possible explanation is provided by the results obtained by B. Bierschenk (1972), who has shown in a micro-teaching experiment that, even if trainees and teacher educators "see" (perceive) the same things in a teaching situation, they evaluate the situation differently. These differences of evaluation do not disappear after three years of teacher training and consequently there is a grave risk of tutor and trainee talking at cross purposes.

2. The relation between theory and practice: Although it is neither possible nor desirable for all theoretical instruction to be directly and manifestly "useful" to the prospective teacher, a high correlation between practical and theoretical instruction is one of the goals of teacher education. This relationship has been the subject of many studies. Under the KUL project (1972) an investigation has been carried out to see which parts of the first term of teacher training for subject teachers have proved useful during the term of teaching practice.

	Earlier practice	Methodology instruction	Teaching of educational theory
Of great use	79%	56%	17%
Of little use	21%	44%	83%

Of course, this evaluation depends not only on the subject studies but also on the design of the term of teaching practice. The attitudes of these subject teachers are in stark contrast to those found by P. Sundgren (1970) in his studies of trainee class teachers. These evaluations were made three terms after the teachers had qualified.

	Practical guidance	Methodology instruction	Teaching of educational theory
Of great practical value	77%	68%	94%
Of little practical value	23%	32%	6%

3. Sequence: Several analyses have been made of the question of the sequence of studies. The 1960 Teacher Training Committee proposed step-wise induction in the teaching profession, and this principle has been implemented in teacher education in recent years, in observation studies (CCTV and one-way screen):

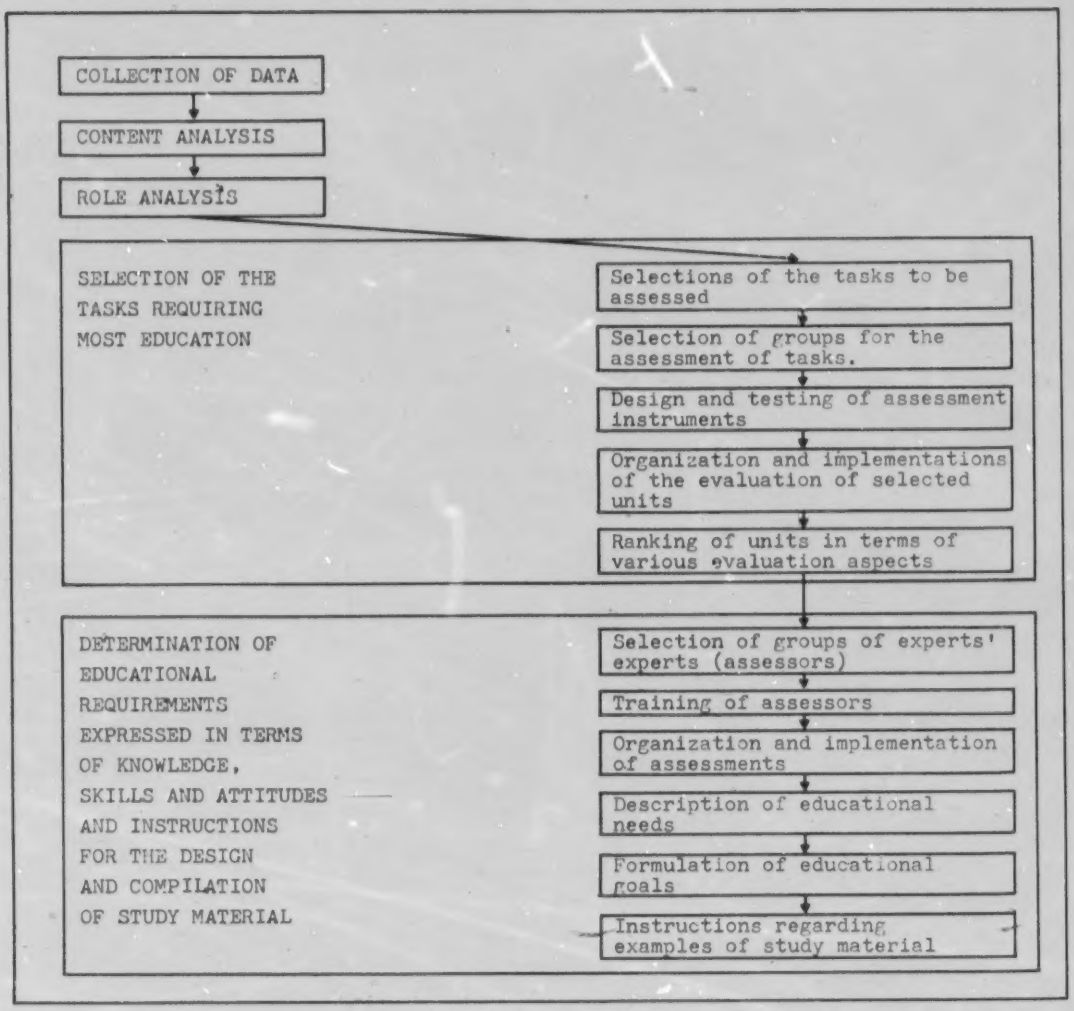
- free visits to lessons,
- shorter practice lessons,
- series or periods of practice,
- teaching practice term.

The timing of practice particularly has been discussed in a variety of contexts. There are no systematically retrieved data pointing in favour of any particular timing. In class teacher education, however, subject studies, educational theory, methodology and teaching practice invariably alternate. In subject teacher education subject studies are concluded before the commencement of practical teacher training, though a general course in educational theory is taken parallel to each subject at university by way of vocational guidance and information.

The co-ordination of subject studies and practical teacher training has often been referred to as one of the main issues of teacher training. According to a subsidiary study from the KUL project (B. Håkansson, L.O. Jiveskog and K.G. Wikander, 1973) prospective class teachers do not regard the co-ordination of subject studies and teaching practice as the major problem. They are more concerned over the lack of consistence and co-ordination within each of these entities. Thus they find that there are not only too many differences between methodology and educational theory, and also between methodology and teaching practice, but also that different teachers within the same subject overlap, contradict or otherwise miss in co-ordination.

4. The education of the teacher educators: Of course the quality of teacher education is also dependent on the education of the teacher educators themselves. No special qualifications are required for appointments in teacher education, but brief courses are continually being held for existing educators. In order to provide a basis for more systematic training in this respect, the so-called B-project led by K. Gestrelius (1972) has evolved planning matrices in accordance with the following research model.

A somewhat more detailed presentation of teacher education research in recent years at the Swedish schools of education, commissioned by the National Board of Education, will be found in a special Appendix to this report.


COLLECTION OF DATA
CONTENT ANALYSIS
ROLE ANALYSIS
SELECTION OF THE TASKS REQUIRING MOST EDUCATION
Selections of the tasks to be assessed
Selection of groups for the assessment of tasks.
Design and testing of assessment instruments
Organization and implementations of the evaluation of selected units
Ranking of units in terms of various evaluation aspects
DETERMINATION OF EDUCATIONAL REQUIREMENTS EXPRESSED IN TERMS OF KNOWLEDGE, SKILLS AND ATTITUDES AND INSTRUCTIONS FOR THE DESIGN AND COMPILATION OF STUDY MATERIAL
Selection of groups of experts' experts (assessors)
Training of assessors
Organization and implementation of assessments
Description of educational needs
Formulation of educational goals
Instructions regarding examples of study material

6.6 Summary

This chapter deals with educational research and development on the subject of teacher education. The majority of these studies have been conducted at Swedish schools of education.

Analyses of the goals of teacher education have revealed that head masters and teacher educators attach great importance to the teacher role in the socio-emotional sense. A number of studies have also been devoted to the attitudes of the prospective teachers to their future tasks in a reformed school system. Among other things, it has been found that trainee teachers experience something of a reality shock during their term of teaching practice and that this induces a negative change of attitude.

As regards studies of means and methods, particular attention is given to the use of closed circuit television (CCTV) in teacher education, both as a means of concretizing educational theory and as a means whereby the trainees can study their own and other people's behaviour in the teaching context. Both trainees and teacher educators report predominantly encouraging experience of CCTV.

Surveys have been initiated in recent years with a view to the evaluation of teacher education as a system. Groups of trainee teachers are being followed up throughout the whole course of their training. This evaluation is concerned not only with goals and results but also with the resources and processes of the teacher education system.

VII. RESEARCH INTO THE APTITUDE AND SUCCESS OF TEACHERS

7.1 The problem of criteria

One question which has concerned many Scandinavian researchers is the meaning of the terms suitability and success applied to teachers, the definition of these terms and their relation to different results in the context of schools and education.

This is a wide sector of problems. Research into teacher suitability is profuse, the number of studies on the subject during the past half century presumably running into four figures. Here we shall confine ourselves to a number of Swedish, Norwegian and Finnish contributions from the past two decades. Some of these studies have been carried out at the research institutions of schools of education in direct conjunction with selection, education and examination in teacher training. Others have been carried out at university institutions of behavioural research.

One way of classifying different criteria of aptitude and success as a teacher is simply to list them in a chronological sequence from teacher education to teaching. This gives, for example, the following five criteria:

1. Selection criteria for admission to teacher education with predetermined goals.
2. Educational criteria, i.e. processes and resources in the course of teacher education.
3. Qualification criteria, e.g. subject knowledge, knowledge of educational theory and teaching proficiency in the practical exercises coming at the end of the course of teacher education.
4. Teacher behaviour and the teacher role in the practice of the teaching profession after the completion of teacher education.
5. The results achieved by the teacher's pupils, including both cognitive and non-cognitive results.

The studies briefly mentioned below comprise analyses and definitions of the above criteria and relationships between criteria at these different levels, e.g. the connection between selection criteria and qualification criteria or between criteria of this kind and various determinations of teaching success.

7.2 Expert assessments of teacher behaviour

Between 1948 and 1968, selection for class teacher education in Sweden was based among other things on special aptitude tests. The experiments from the first years were reported by E. Malmquist (1956). These tests comprised essay writing, public speaking (narrative and descriptive tests), free occupation with children and a number of group tests concerning attitudes to the teaching profession. The results of these selection tests were correlated with the teaching proficiency of the prospective teachers at the conclusion of their training and the following relations were obtained (maximum and minimum correlations at teacher training colleges):

		Minimum	Maximum
1.	Essay writing	-0.36	+0.46
2.	Public speaking (narrative)	-0.03	+0.78
3.	Public speaking (descriptive)	-0.05	+0.76
4.	Reading aloud	-0.06	+0.40
5.	Free occupation with children	-0.05	+0.58
6.	Group tests of various kinds	-0.01	+0.42
7.	Total for 1-6, supra	+0.05	+0.61

As can be seen, the correlations vary a great deal from one training college to another. This alone suggests that the determinations were of little reliability and validity. The average picture suggests a positive but slight connection. One of the difficulties of these correlation studies is that in many cases the same teacher educators led the selection tests and then awarded teaching proficiency marks at the end of the training course.

Another study, in which teaching proficiency was also judged by a group of experts was carried out by E.Linder (1957). The results of selection for teacher education were correlated with teaching proficiency on completion of the training and also with the results of subsequent teaching in the trainees' own classes. The professional assessment was undertaken 2-3 years after the trainees had qualified and took the form of ratings by 4-5 mutually independent, experienced judges. Correlations were computed between the results of the suitability tests used for admissions (essay writing etc., vid. supra) and a number of criteria. The results of the complete suitability tests in connection with admission bore no relation to the ultimate teaching proficiency award. On the other hand they did show a slight positive connection with the professional assessments of teaching proficiency. Of the sub-tests used in determining suitability for admission, the results of the interview and of free occupation with children showed a positive connection with the criteria used.

In a Finnish project, M. Koskenniemi (1965) followed 72 teachers from their selection for training until they were independently active as teachers ten years later. The study was therefore made to include an analysis of selection, training and qualification variables and a continuous observation of individual trainees during these various stages. A detailed study was also made of the adjustment of individual teachers to working conditions in their respective schools and school districts, in addition to which selection data and data from training and qualification were related to various criteria of success in an actual school situation.

Special entrance examinations were conducted. While training was in progress a study was made, among other things, of the development of the trainees' attitudes, using MTAI (Minnesota Teacher Attitude Inventory) tests. The final certificate included awards for knowledge and skill in the subjects comprised by the course of training and also an award for teaching proficiency.

The new teachers were visited in their schools (an exacting task in itself, since they were spread out over the entire country) and ratings of teaching behaviour and teaching success were undertaken using instruments constructed for the purpose. A description was given of the whole of the environment entered by the new teacher - the school, the local education authority and the pupils, indeed the whole of the school district. This study was carried out by the official inspectors of the schools concerned as well as by specially appointed observers. A special detailed study was made of 19 male and 9 female teachers whose final results gave an exceptionally good or an exceptionally bad prognosis and whose working conditions were judged to be exceptionally good or bad. The assessment concerned the suitability of the teacher's actions in relation to the conditions in which he was working and the general goals laid down for his teaching.

A high relation was obtained between the professional success assessed on these lines and the teaching proficiency award gained by the teacher on completion of his training. The correlation between teaching success as judged by the school inspectors and the teaching proficiency award was somewhat lower but still clearly significant, though it should be noted that these relation estimates were confined to extreme groups, viz the best and the worst.

Less encouraging results were obtained concerning the most important issue in the survey as a whole, namely the correlation between selection and teaching success. Insofar as they occurred at all, these relations were low and inconsistent. Thus the selection variables did not involve factors capable of discriminating the prospectively unsuccessful individuals from the others. But the possibilities of predicting a positive or negative development in the course of training were not excluded. Here the Finnish research team was able to substantiate the long-standing hypothesis that a negative development is more amenable to prognosis than a positive one. A common feature of the less successful teachers was their lack of understanding for children and their lack of ability to structure the teaching situation.

Another survey in which teaching success was assessed by experts was conducted by S. Marklund (1968), 56 school inspectors assessing the skill of a total of 1,730 class teachers in a series of sub-studies. The reliability of these assessments was studied by means of repeated assessments and double assessments. The assessments referred to particular criterion variables and to general anecdotal pronouncements describing the teacher's mode of teaching. The latter could be divided into three groups, viz the teacher's ability as 1) a mediator of instruction, 2) a planner and administrator and 3) a creator of good social relations between the pupils and between teacher and pupils.

The teaching behaviour of two criterion groups, one consisting of "good" teachers and the other of "bad" teachers, was characterized as follows:

	No. descriptions of	
	"good" teachers	"bad" teachers
1) Provide instruction	16	5
2) Plan and administrate	15	14
3) Social relations	8	32

This study also included a systematic observation, based on a special assessment schedule, of 41 teachers and their pupils by two mutually independent observers. The relation between the two observers' assessments of teacher behaviour was 0.67 and the corresponding figure with regard to their assessment of pupil behaviour was 0.56. The relations between these ratings and the school inspectors' assessments of teaching success were:

Observed teaching behaviour - inspectors' assessment	0.54
Observed pupil behaviour - inspectors' assessment	0.43
Observed teaching behaviour - observed pupil behaviour	0.49

Observed teaching behaviour was also correlated with the pupils Swedish, English, mathematics, science and social studies results in standardized achievement tests. The mean value of these relations was 0.33.

All these relations are low, but they deviate significantly from zero. Marklund's results, like Linder's before them, suggest that experts can achieve a certain, though limited, unanimity in defining the meaning of teaching success.

7.3 Attitudes and self-ratings as criteria of teaching success

In a Norwegian study by J. Sandven (1969), students admitted to class teacher training were compared with students who were not admitted. The comparisons covered both achievement variables (examination results, intelligence test results etc.) and tests concerning self-characterizations with reference to such variables as "co-reaction" (empathy, sympathy) and "feelings of security". The following relations were obtained from a comparison on admission to teacher training and on conclusion of training:

	r	N
Admission examination and total result from college	0.43	315
Maturity test and total end result	0.23	285
Ability test and total result	0.22	285
Co-reaction at admission and co-reaction at re-test 4 years later	0.50	285
Corresponding result for feeling of security	0.62	285

It appears that in the course of the training period greater shifts take place in the area of achievement than in the area of basic personal reaction.

Previous discussions concerning the teacher function, teacher apptitude, the teacher's job satisfaction etc. have adopted a rather narrow approach in terms of individual psychology. Interest has centered on individual signs of "good" or "bad" teachers or trainee teachers. Very little study has been made of the variable factors of the school environment, e.g. the interaction between teacher and teacher, between teacher and pupil or between teacher and other staff, i.e. factors which may well help to determine whether the results of a teacher's work will be good or bad. A more social-psychological approach has now begun to gain ground. The KULT-A project (K.H. Eriksson, 1972) adopts this approach with regard to factors which can be shown in the individual case to lead to a greater or lesser degree of work satisfaction and professional success. A project on in-service teacher training (H. Eklund, 1972) has also emphasized the social-psychological aspect. School psychologists are also beginning to react against what has been termed the "persistence of the culture of the individual-centered diagnosis", claiming that both teachers and pupils in school must be able to belong to a group "where it is permissible to relieve one's feelings of insufficiency and uncertainty without any loss of prestige and whose members support and help each other" (Westermark,1973). School psychologists have taken the initiative in forming groups of this kind and a special project, "Group Conversations for Teachers", started in 1970.

In 1970 the Norwegians Strømnes and Kleven carried out a summary characterization of Scandinavian teacher aptitude studies comprising descriptive surveys and prognosis studies of teacher suitability. The former are said to include discoveries of a relatively trivial nature which, however, may prove more interesting if they show a high correlation with a criterion of teacher aptitude. The latter are thought to show (with reference to Koskenniemi, 1965) that the teacher's contentment is a poor criterion of teaching skill, that prediction on the basis of a medical-psychiatric assessment is of little relevance to teacher aptitude, but on the other hand that a possible personality diagnosis may afford a better prognosis in this respect than a matriculation award.

Strømnes and Kleven maintain that there is little probability of our ever devising a simple predictor of high validity. If this occasions "pessimism from the point of view of prediction research, it should occasion a corresponding degree of optimism from the point of view of learning", the authors maintain, since changes in teacher behaviour can be referred back e.g. to influence during teacher training and later.

Strømnes-Kleven have also devised an instrument for the evaluation of teaching skill (Strømnes-Kleven, 1971). An important problem in this connection has been whether to evaluate the trainees' teaching practice globally or to delineate certain variables for separate assessment.

7.4 The prognosis value of the selection instruments

The above-mentioned studies shed a certain light on the value of the instruments of selection in forecasting success in the course of teacher education and during subsequent activity as a teacher. A number of studies of this kind have also been made by P. Sundgren (1970), who followed a group of trainee class teachers during their training and for two years after their qualification. The study began in 1962/63 with comprehensive tests of applicants for class teacher training. The tests used comprised personality inventories, attitude inventories and intelligence tests. On the basis of test data of this kind, Sundgren endeavoured to predict "teacher aptitude". When the trainees qualified, three years later, the first criterion particulars were obtained in the form of merits, e.g. for teaching proficiency. Training success criteria of this kind showed a positive correlation with the following prognosis variables:

1. Certain cognitive variables, among them upper secondary school merits for academic subjects.
2. Ambition and motivation for training.
3. Attitudes to (a) children, (b) the social environment generally and (c) a democratic teacher role.

During the teachers' second year of teaching following their qualification, the pupils in their classes were given - at five-month intervals - a test battery comprising intelligence tests, knowledge tests, social tests and personality tests. The aim was to study whether and how the pupils had changed under the influence of the teachers being studied. The data already collected with regard to the teachers were related to these particulars concerning the pupils' development in various respects during a five-month period. Significant relations could be established between changes in the pupils' behaviour and the data obtained concerning their teachers, as can be seen from the following summary.

Teacher characteristics	Pupil change
1a. Authoritarian attitude	Great increase in knowledge
1b. Social, humane	Slight increase in knowledge
2a. Social, humane, capable of subordinating oneself	Positive social development
2b. Achievement-oriented, socially uncertain	Negative social development
3a. Independent, pupil-centred	Positive change (towards emotional stability)
3b. Achievement-oriented, uncertain, great need of organization	Negative change (towards emotional instability)

These results of Sundgren's seem to suggest that the pupils' development at school is influenced by the qualities displayed by their teacher during his training.

B.O. Ljung and J. Naeslund (1973) have investigated the reliability and validity of subjective assessments in teacher education. The term subjective assessments referred above all to assessments in connection with admission interviews and individual teaching performances, e.g. recorded on tape or via closed circuit television. Assessments were made by lecturers in methods, tutors, other trainees and pupils. Merits for teaching proficiency as the aggregate of a number of subjective assessments were also taken into consideration.

The reliability of individual subjective assessments was found to be very low. This applied to both inter- and intra-assessment reliability. Moreover the same verdict applied to assessments of interviews and of teaching situations and also to ratings and rankings. As a general rule ten or more assessors would be needed in order to achieve 0.90 reliability.

The low reliability both at the prediction and at the criterion stage entitles one a priori to expect the assessments to be of low validity, as indeed proved to be the case. A reduction of the deficiencies of reliability through the supply of additional information to predictor and criterion did not produce coefficients of validity differing significantly from zero.

7.5 Summary

Scandinavian teacher suitability research, of which it has only been possible here to give an incomplete description, like teacher suitability research, generally has been unable to supply unambiguous answers to the questions concerning the effects of the selection and education of teachers on their subsequent teaching and the effects of the latter on their pupils. A cautious optimism seems to be emerging, however, concerning the possibilities of achieving a systematic knowledge of the effects on the pupils of different kinds of teacher selection and teacher education.

Up to the end of the sixties, a great number of studies were made regarding teacher characteristics, teacher personality and teacher effectiveness. These investigations represent the first phase of a long line of studies. Efforts were made to find the criteria which define the "good" teacher. Different methods and materials were employed and different procedures were used. Most of them were based on the assumption that there are teacher characteristics which are generally "good" and teachers who are generally "bad" independently of external conditions. It cannot be said that the researchers engaged were very successful.

Side by side with these studies, and as a second phase, a number of studies have been conducted during the past decade which have focussed more on teacher behaviour and pupil behaviour as criteria.

A third phase now seems to have commenced, the terms teacher characteristics and teacher behaviour are being expanded to refer to the teacher role. The teacher's tasks must not be confined to didactic questions or questions concerning the classroom climate. The teacher is a social functionary in a broader sense. Studies of teacher behaviour at micro-level must be combined with studies of teacher behaviour at macro-level. The macro-role is not an alternative to the micro-role but an essential

supplement to it. It is thus in the combination of micro- and macro-level behaviour that we have a chance of developing new theories concerning teacher aptitude and teacher effectiveness.

This will perhaps provide us with safer relations between predictions and criteria of progress. We may perhaps, if we combine good teacher behaviour at micro-level with different kinds of teacher role at macro-level, find the answer to the as yet unsolved problem of what characterizes the effective teacher and how such a teacher can be trained.

The experience gained as a result of research can be said to include the following:

1. There is no simple, unambiguous "teacher aptitude" existing independently of situational factors. "Unsuitability" as a teacher seems easier to define. Selection for teacher education should therefore be aimed primarily at avoiding presumptive failures.

2. Teacher education should be organized in such a way that it is still possible, after education has begun, to warn or otherwise divert trainees who are expected to encounter serious difficulties as teachers.

3. Group conversations, group dynamics, in-service training and personal guidance and counselling should be organized for teachers who, in spite of the precautions indicated above, have completed their training and are already active as teachers.

VIII. SOME CONCLUSIONS

In the preceding chapters we have tried to illustrate the development of teacher education in Sweden in recent years and also to show the use which has been made in this context of educational research and development. It has not been possible to deal with more than a limited number of issues and studies. We have concentrated the presentation on investigations and development enterprises closely connected with teacher training and the role of the teacher. Here is a brief summary in 12 points of some experience gained in recent years.

1. The reform and continuous development of teacher education is directly dependent on reforms and developments in the school system and education as a whole. Teacher education can never be autonomous or independent. On the other hand changes in teacher education are not to be viewed merely as a necessary consequence of changes in the school system and the field of education. Teacher education is also a developing motive force which can lead to changes and improvements in the educational system.

2. Swedish experience suggests that reforms and innovations, whether they are concerned with teacher education or other educational sectors, cannot be carried through in isolation by educationalists, administrators or policy makers. All three must collaborate. They cannot work independently of each other in a society demanding rapid and sweeping changes. It is important to institutionalize the forms of this collaboration and to devise ways and means of communication between the three parties.

3. The nexus between reform activities generally and educational research and development has been a topic of lively discussion in Sweden throughout the post-war period. Sweden has two contributions which may be unique in the frequently noted problem of the relationship between these two entities - a problem concerning the entire western world.

One of these contributions is the Swedish government committees. Practically every educational reform, including reforms of teacher education, undertaken since the last war has been preceded by comprehensive committee work by Government Commissions. A characteristic feature of this work is that the committees have included or been assisted by administrators and researchers as well as policy makers. These committees have provided policy makers, administrators and researchers with a platform of communication and confrontation.

The second type of body for similar purposes of collaboration is to be found in the central administrative authorities, above all the National Board of Education and the Office of the Chancellor of the Swedish Universities. The boards governing these authorities include representatives of various interests. The heads and experts there

are politically independent. They are not merely administrators, they are also professional experts in matters of educational theory and educational administration.

Collaboration between researchers, administrators and policy makers poses many difficult and as yet unsolved problems, but the system of committees and the central administrative authorities have undoubtedly helped to reconcile differences and provide contacts.

4. It follows from the above that a new scheme of teacher training in a constant process of development must be susceptible to the influence of educational research and development. Swedish experience has shown that educational research can easily be done by the teacher training institutions but that educational research and teacher training do not necessarily or immediately stand to benefit from their mutual proximity. It has been found that there is a serious risk of the individual institution being split into a training part and a research part. This can be counteracted e.g. by stipulating a circulation of personnel between the two and also by means of administrative and educational arrangements within the individual teacher education institution.

5. The research associated with teacher education should not be exclusively confined to matters of teacher education. It should cover educational matters in the broadest sense, i.e. problems at different school levels and different sectors such as goals, means, methods and results. Experience has shown that the choice of research topics is liable to be restricted to pedagogical and didactic issues, above all on the grounds that these are the most "useful". A deliberate effort must be made to break this tendency to isolation and restriction to purely pedagogical questions within the educational system and to expand the topics dealt with to cover the role and tasks of school and education in social developments generally, i.e. economics of education, educational sociology, educational policy, educational change etc. The research institutes at the schools of education can form a basis for such an interdisciplinary educational research.

6. Research is in constant danger of being isolated from matters of practical application. One means of breaking this isolation and also of inducing the users of research findings to realize the value of long-term research and of the indirect consequences of research is to join research projects and development projects together. Development work has often been neglected. It needs to be planned, often by the same personnel and experts who plan research. Often this is done by incorporating an information sector, a sales sector or a contact function with the presumptive users of the findings in research projects from the very outset. Thus efforts have been made in Sweden to institutionalize the forms of collaboration between researchers and educational publishers, researchers and teacher educators, researchers and those responsible for in-service teacher training, researchers and mass media. It has been found neccessary to incorporate a "marketing" of results in educational research itself so as to prevent results from gathering dust on the researcher's private shelf. In this way research can make up a means for a continuous in-service training. Development projects can often be mounted at research institutions. But they can also be delegated

to local school authorities, institutes of further training and educational publishers. According to Swedish experience, development projects sometimes require as great an input of resources from the sponsor as genuine research projects, if not more.

7. One of the aims of the 1968 reform of teacher education in Sweden was to link together education and teacher education research. A certain measure of success has been achieved, though it has been far from complete. Teacher education research at the institutions of teacher education has come to include not only matters concerning the goals and final results of teacher education but also matters connected with other problem areas of teacher education, i.e. training content, forms, processes and resources.

8. Another goal expressed in the 1968 reform of teacher education was to bridge the excessively wide gap between different teacher categories, above all between class teachers and subject teachers. Valuable results have been achieved in Sweden in this respect, even if the differences involved have proved too deeply rooted to be eliminated by only a new scheme of education. Class and subject teachers start their education at the same level, i.e. on completion of their secondary schooling. They are trained within the same institution and by the same teacher educators. The differences between them have been reduced but have by no means been eliminated. The process of equalization is more a question of appointments, conditions of service and pay than a question of teacher education.

9. Another express aim of the 1968 reform of teacher education was for teacher education to be put on a "scientific footing". Teaching methods and work procedures in school were to be derived from an empirical knowledge of schools and their pupils and were not to be served up as ready-made solutions regardless of current conditions. Efforts have been made to achieve this aim by means of various organizational arrangements, for example:

- teacher education is to be conducted at post-secondary level and in the spirit of inquiry and experimentation associated with higher education;
- educational research is to be conducted at teacher training establishments and by the personnel responsible for such training;
- special methodology appointments have been made with a view to linking theoretical and scientific pedagogics with practical application at the teaching institution;
- special experimental and demonstration schools have been established at which trainee teachers and teacher educators can conduct or follow experiments and demonstrations involving different work procedures;
- basic teacher training is only the beginning of a lifelong development on the teacher's part, and as such is expected to be followed by systematic in-service training.

These high ambitions have to a great extent been realized as far as external organization is concerned. But this is not to say that the aim of the reforms has been achieved. In all the innovations referred to, the process of reform would seem to be only at its beginning.

10. All this research and development work requires more knowledge and basic theory. Educational research is constantly contributing new findings. Researchers are analysing a) what ought to happen in teacher education and education generally, b) what actually does happen there, c) what could happen, i.e. alternative solutions to problems. Research is also aimed at revealing the connections between different factors, between cause and effect.

Without being negative, Swedish experience shows that where research and research findings are concerned, one has to be prepared for far greater problems of communication and information than were generally anticipated at the inception of the reform of teaching education. There is still a great risk of research lapsing into splendid isolation from questions of application.

11. The changes which have occurred and which can be expected to occur in teacher education and in education generally emanate above all from three sources:

- political-administrative power and direction,
- beliefs and convictions on the part of those directly involved and
- knowledge and research concerning reality and real conditions.

Reforms and development are always based on these three factors, though the proportions can vary according to the nature and scale of the matters involved. Accordingly, the researcher cannot work independently of others, e.g. teachers, pupils, parents, head teachers, school policy makers. Swedish experience would therefore seem to indicate that the development of the educational system stands to gain most by an improvement of communication and information between the interested parties.

12. The evaluation of educational systems, including teacher education, must not be made an end in itself or an end for administrators or other separate interests. The purpose of evaluation certainly concerns central authorities, political, administrative and educational, but its principal aim is to provide a basis for continuous self-appraisal on the part of those taking part in the process. Their aim is not so much inspection as self-help. The goal therefore is to incorporate mechanisms of self-renewal in every kind of education and institution.

Swedish experience in this quarter is incomplete as yet. The achievement of such a self-renewal has proved to be a long-term task.

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II

THE WORKING CONDITIONS OF TEACHERS:

A CASE STUDY

by

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SUMMARY

The Committee ULA (1) was set up with the task of examining the working conditions of teachers in both the old and the new types of schools, the object being to determine whether the school reforms would result in an increase in the teacher's working time. The findings, in fact, confirmed an increase, but the total working time still fell below the legal forty-hour work week for other officials in Sweden. In consequence, the findings of ULA's research did not lead to changes in the working time for teachers.

The results of ULA's survey were also expected to be useful for rationalizing resources within the school. However, when they were made available it was realized that the teacher shortage in 1964 would soon turn into a shortage of work opportunities for the teachers. Therefore, at the time the reports were published, proposals designed to reduce the working time for teachers were no longer of political interest.

On the other hand, ULA's reports offer interesting material on the working conditions of teachers and can be useful for pedagogical scientists in planning teacher training and in school administration.

L1) Utredningen rörande lärarnas arbetsförhållanden, or Committee for the Investigation of the Working Conditions of teachers.

I. THE CREATION OF ULA, ITS MEMBERS AND TASKS

In 1962 the Riksdagen (Swedish parliament) resolved that the folkskolan (primary school), realskolan and kommunala flickskolan (lower secondary schools) together should be transformed into a single and compulsory, nine-year comprehensive school. This school, to be known as the grundskolan, would be for pupils between the ages of 7 and 16. The 1962 Educational Act was the outcome of large-scale experimental work which had been started in 1949.

Three years later changes were made in the gymnasium (upper secondary or high school) in order that it might be better adapted as a continuation of the comprehensive school. The reforms included major changes in the objectives, curricula and working methods of the schools. The teachers' unions maintained that the changes would result in a greater number of working hours for the teachers. The Minister of Education declared, in turn, that some of the changes would involve a reduction of working hours so that, on balance, there would be no increase for the teachers. He promised, however, to proceed with a thorough examination of working conditions in the new types of schools as soon as the work became sufficiently stabilized. As a result, in April 1964 the ULA Committee was created.

Since the government considered it important that the reliability of the results be accepted by the teachers as well as the politicians and the general public, representatives of employers, trade unions and experts were all appointed to the Committee. It was composed as follows: three representatives of the state and the municipalities; three representatives of the teachers' unions; and one expert each in the fields of school administration, resource rationalization and statistics. All investigations were unanimously determined by the Committee members and subsequent statistical surveys were carried out by the Central Bureau of Statistics in collaboration with the secretary of the Committee.

The first task of the ULA Committee was to examine the working conditions of the teachers in the old types of schools in order to determine the working time. This investigation was carried out in 1965/66, the last school year in which all the old schools were in operation. Three years later ULA considered that the new comprehensive school (grundskolan) was stabilized sufficiently for an examination to be made of teachers' working time. No survey has yet been made of the new upper secondary or high school (gymnasiet).

The most important requirement of ULA was that all research carried out be strictly scientific; all statistical methods were tested and approved by the scientific advisors of the Central Bureau of Statistics; various other methodological problems were treated by other scientists and experts.

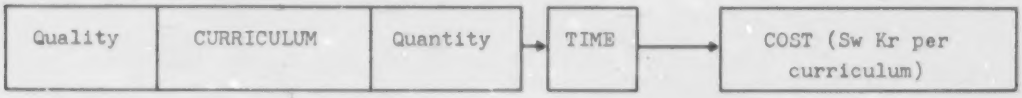
The Minister of Education laid down the guidelines for the Committee's work. First, the Committee was to consider the various research methods to be used. All problems were to be handled systematically. The object of the research, i.e. the teachers' work, was to be analysed in such a manner as to clarify what had to be examined. Only after such preliminary work was completed could the necessary investigations and collections of data be defined in detail. It was decided to construct a theoretical and graphic model through which the conditions influencing the quantity of the teachers' work could be determined. However, as the teachers' work is only a part of the school activities, it was decided that the object of the model-construction would be broadened to include an assessment of the total educational work in school. This first model was to show the relation between the various factors influencing education, its results, the resources required and costs. The public cost of educating pupils, however, includes not only teachers' salaries but also those of other staff and employees as well as costs of learning aids and social costs.

The educational activity can be broken down into a number of products or services including courses, supervisory duties, class superintendents' work and head teachers' work. The most important of these services is the courses. As an example of a course, let us take the subject Physics in Grade 7, i.e. the instruction in that subject which the teacher must give during Grade 7 and the corresponding knowledge acquired by the pupils. A model of the teachers' total work would include the following primary parameters of decisive significance:

- teaching
- planning, preparation and follow-up work in connection with the teaching
- meetings
- other contacts
- supervisory duties
- class superintendents' work
- head teachers' work
- specially paid work
- travel
- other work.

In the theoretical analysis of how to plan the research, ULA started from the point that producing a course (curriculum) will demand time and consequently will

cost money. The course naturally has qualitative as well as quantitative aspects, and both influence the time required and cost. So one gets



ULA found that it is very difficult to evaluate the quality of teaching because the goal of a particular type of school or even of a particular subject in a given grade is seldom fixed in measurable quantities. Typewriting, for instance, is an exception. However, as the task of the ULA Committee was simply to determine the average working time for all teachers, or all teachers of a particular type, it was not necessary to evaluate the teaching of each teacher who participated in the research. ULA therefore decided not to test the quality of the teachers' work. On the other hand, it is perhaps necessary to measure the quality of the results of a particular method of teaching, especially if it is to be compared to other methods.

CURRICULUM, TIME and COST may be considered as primary parameters. Each of these three parameters can be divided into smaller parameters. The total time required, for example, depends not only on the quantity of the curriculum but also on factors such as school location, physical and mental status of the pupils, organization and methods of education, educational materials, localities, as well as the character and qualifications of the teachers and other staff members. These factors are secondary parameters. ULA collected data, according to these secondary parameters, from the school-offices and from the teachers themselves.

In processing the data, ULA tried to determine the relation between some of the primary and some of the secondary parameters. This will be discussed in the account of the research which follows.

Swedish teachers are required to teach a given number of lessons per week and for every lesson over that number they receive additional pay. Similarly, they are paid for other jobs which are few in number. ULA defined a teacher's work as that work which corresponds to the basic salary, without additional pay. In order to measure the teachers' working hours ULA therefore had to differentiate between work included in their appointment as teachers and work for which they were specifically paid. This differentiation had to be maintained when ULA determined the activities of the research.

For the collection of data in the old secondary schools, the activities comprising the primary parameter "TIME" were as follows:

Teaching functions

1. Lessons, preparations and follow-up work
2. Construction and correction of written work
3. Supervision of written examinations according to point 2

4. Supervisory duty at recess, mealtime, etc.

5. Masters' meetings

6. Pupil and parent contacts

7. Excursions for pupils and instructions for teachers

8. Planning of teaching: for the school year, a term or a shorter period

9. Contacts with other teachers

10. Hours on duty in other schools with preparation and follow-up work

11. Class superintendents' work: administrative and school-social tasks

12. Class superintendents' work: supervisory and educational tasks

13. Head teachers' work in a given subject

14. Work as warden of an institution (e.g. chemistry)

15. Work as assistant headmaster, librarian etc. for which there is additional payment.

Studies

16. Refresher courses

17. Studies for higher examinations and reading in the teacher's field of specialisation.

Rest and leisure

18. Rest, sleep and personal hygiene

19. Meals

20. Domestic affairs

21. Leisure

22. Other business.

Travel and remaining time

23. Travel between home and school

24. Travel between various buildings and locations of the school

25. Pauses during the school day

26. Remaining mastership-related activities.

However, ULA found that it would be of great interest to know more about the lessons, preparation and follow-up work of the teachers. In the comprehensive-school survey, the 26 activities were therefore broken down into a greater number, but in a way that allowed simple comparisons between the two surveys. Both surveys required the teachers to indicate specifically additionally-paid work.

Activities in the new comprehensive-school survey were as follows:

Teaching

1. Lessons
2. Sports and excursions
3. Individual-pupil tutoring
4. Other teaching.

Planning, preparations and follow-up work

5. Planning of the teaching
6. Lesson preparation
7. Construction of material
8. Testing of the educational materials; preparation of experiments
9. Collection of maps, books etc. and arrangement before the lesson
10. Arrangement after the lesson
11. Care of educational tools
12. Correcting exercise books
13. Composing examinations
14. Correcting tests and examinations
15. Evaluation of pupils' work
16. Planning during masters' meetings
17. Typing
18. Other planning, preparation and follow-up work.

Meetings

19. Masters' meetings
20. Meetings regarding pupils
21. Meetings with the parents
22. Other meetings.

Other Contacts

23. With the headmaster
24. With other teachers
25. With other staff of the school
26. With parents
27. With pupils
28. With others.

Supervisory duties

29. At recess
30. At mealtime
31. After school when pupils are detained
32. Other supervisory duties.

Class superintendents' work

33. Administrative and school-social tasks
34. Care of pupils
35. Other work.

Head teachers' work

36. Pedagogical planning
37. Administration
38. Advisory service to teachers
39. Teacher studies for the mastership
40. Other work.

Specially paid work

41. Instruction of teacher-training students
42. Librarian work
43. Vocational guidance counselling
44. Work as school supervisor
45. Other work.

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Studies and further education

46. Pedagogical reading
47. Further education courses
48. Instructional meetings
49. Other further education
50. Studies leading to qualification for a higher teaching post.

Travel

51. Between home and school
52. Between school buildings and classrooms
53. Between schools when the teacher's work is divided between two or several schools
54. Other travel.

Other work

55. Paid tests
56. Remaining mastership-related activities
57. Morning prayer and preparations
58. Pauses during the school day
59. Rest and sleep
60. Meals
61. Remaining time of leisure (including business not related to the mastership).

In addition to the main research, ULA attempted to study the teachers' work with the assistance of engineers and efficiency experts. This study will be described in Section IV.

In connection with the research in the old schools ULA wanted to examine the "intensity" of the teachers' work, but in a way that would allow differences to be measured between various types of work. The Committee therefore examined various methods of studying stress reactions. Medical tests turned out not to be feasible: not only did they require individual laboratory analysis but also it was felt that they would render the school situation abnormal and therefore bias the results. Psychological tests were considered, but as they would be based solely on responses of the teachers, the results were judged to be too subjective. Finally, after tentative research on a sociological method proved unpromising, the Committee had to abandon its efforts to measure the intensity of the teachers' work.

II. WORKING CONDITIONS OF TEACHERS IN THE OLD TYPES OF SCHOOLS

The old educational structure comprised a seven- or eight-year compulsory primary school (folkskolan); several lower secondary schools of which the most important were the state secondary school, the municipal secondary school (realskolan) and the municipal girls' school (flickskolan); and the upper secondary schools (gymnasiet). In addition, there existed craft, or vocational, schools (yrkesskolan). Admission to the lower and upper secondary schools was based on pupil performance; the reduced number of places available, owing largely to the lack of a sufficient number of qualified teachers, made the schools even more selective. The teaching method generally used was the assignment of home work and follow-up questions related to the work. Occasionally written work was assigned, its practice being more systematic in the secondary schools. Textbooks were seldom changed and amendments were made only in details.

Pupils were strictly supervised, especially during the short recesses. The class superintendent had an important task in relation to the pupils in his class; on the other hand, school psychologists and school welfare officers were seldom engaged in the old schools.

It was only in the lower secondary and high schools (realskolan and gymnasiet) that ULA conducted its survey. In the primary schools, so many teachers had altered their teaching methods that a study of the difference between the old and the new primary schools was no longer possible. Some of ULA's findings are indicated below.

TABLE 1

Average number of working hours for teachers per year and per week during the school year

Type of teaching	Hours per year	Hours per week during school year (1)
Theoretical subjects		
- combined lower and upper secondary schools	1544	36
- lower secondary schools	1433	34
- commercial high schools	1436	33
- technical high schools	1339	31
Applied subjects	1215	29

(1) 39 weeks.

The results of the ULA survey also give information regarding how the teachers use their time.

TABLE 2

Percentage breakdown of working hours by activity for teachers of theoretical subjects

Activity	Upper secondary	Lower secondary
Teaching, preparation, follow-up work, written work	78	74
Supervisory duties meetings, other contacts	11	10
Class superintendent's work	3	4
Main teachers' work	3	3
Other work included in official duties	6	9

The teaching activity was further broken down into some 37 per cent for lessons, 24 per cent for planning, preparation and follow-up work and 13 per cent for written work. Thus it was discovered that roughly half of the time devoted to teaching was used for education work other than giving lessons. It may be concluded, therefore, that the only effective way to reduce the teachers' work is to rationalize the work related to teaching itself. Proposals to transfer some of the teachers' administrative tasks to other staff members will, in fact, save only very little time.

The survey also included the use of teachers' time during vacation periods and in summer. It was found that the teachers in theoretical subjects spent 91 hours of vacation time and those in applied subjects 47 hours on educational work.

III. WORKING CONDITIONS OF TEACHERS IN THE COMPREHENSIVE SCHOOL

As mentioned above, ULA's surveys in the new types of schools have been carried out only in the comprehensive school (grundskolan). The Swedish school reform has changed not only the organization but also the goal and the pedagogical methods in the primary and secondary schools.

Before World War II, for most people in Sweden the basic skills of reading, writing and arithmetic were sufficient. Workers and farmers did not need professional training; for the most part, people had no need of knowledge of foreign languages. In secondary schools students were taught to be self-reliant since most work was of an independent nature.

Swedish society changed rapidly following World War II. As a result, people needed a broader general knowledge than was previously necessary as well as professional training and knowledge of a foreign language.

There is no longer a labour-market demand in Sweden for young people in their teens. Furthermore people without professional training are of limited use, even in agriculture and forestry. These two factors together have resulted in the necessity to keep young people in school.

In 1950, when nine years of schooling with a short professional preparation seemed sufficient, industry was interested in the organization of the new complusory school. By 1960 their interest had become directed towards upper secondary education, and today post-secondary education is of greater interest than ever before. Some 85 per cent of the pupils in the comprehensive school now wish to continue to the upper secondary school. This school, which in addition to the high school now includes craft or vocational schools, has an intake capacity of 90 per cent of the corresponding age group.

Work in Sweden is being increasingly organized on a team basis and students must be trained to work together. Emphasis has correspondingly been shifted from self-reliance to collaboration.

The teachers themselves must collaborate in their educational work, both with other teachers and with other staff members such as headmaster, school psychologist, school welfare officer and school physician for problems regarding the mentally or psychologically handicapped. Team work requires more time for meetings than former methods but it also enables one teacher to benefit from another's work. The teachers plan together and they may divide the lesson preparations among themselves.

The comprehensive school (grundskolan) was set up between the years 1962 and 1965, and ULA carried out its survey in the school year of 1968-69. Four thousand teachers were selected at random and were asked to make notations of all their activities, including non-educational work. The number of participants was determined scientifically, irrespective of the size of country. More than 90 per cent of the teachers agreed to participate. There were some drop-outs due to illness, leave of absence, death and a reluctance to follow up with the notation, but from a scientific point of view the remaining number of participants was sufficient.

The survey in the comprehensive school, as in the old secondary schools, covered the vacation periods as well as school time. Participants were divided into eight groups, each group recording all activities for a 24-hour day during a five-week period at various times of the year. The statistical tables include the following groups of teachers: primary school teachers, elementary school teachers, special education teachers (including those for retarded children), secondary school teachers (in theoretical subjects), music masters, physical education masters, drawing masters, handicraft teachers (for woodwork and metalwork and for needlework), domestic science teachers and vocational teachers.

The results of the ULA survey showed that the teachers' work in the three upper grades of the comprehensive school had increased by one or two hours per week when compared to that in the former lower secondary school. Since the teachers' work load still fell below the 40 hours per week which is the legal work week for other employees in Sweden, ULA's research did not result in any change in the number of hours worked for the teachers. In fact, there have been very few debates in connection with the results of ULA's research.

The teachers' working hours for a year, as reported in the survey, represent the total hours for which salary was paid plus those for which special pay was received. ULA has published the total work hours recorded by the teachers as well as an estimate of the proportion of total hours attributed solely to salary (i.e. excluding hours attributed to special pay). The latter figures are given in Table 3.

In the old types of schools, work related to teaching accounted for between 70 per cent and 80 per cent of the teachers' total working time. For teachers in theoretical subjects, the time required for planning, preparation and follow up work was the same as for lessons. For other teachers, lesson time represented a far greater proportion of total working time. (See Table 4).

Table 4 also shows the difference in numbers of lessons given by the various groups of teachers. Vocational teachers have the greatest number and secondary school teachers for theoretical subjects the fewest. The number of lessons for the physical education masters depends on their course load in grades 7, 8 and 9.

TABLE 3

Estimate of working hours attributed to salary

Teacher group	Hours of work			
	per year	for two terms	vacation periods	per week
Primary school teachers	1392	1359	33	34.0
Elementary school teachers	1479	1426	53	35.7
Teachers for special education	1359	1303	56	32.6
Secondary school teachers (theoretical subjects)	1519	1442	77	36.1
Masters of applied subjects	1337	1277	60	31.9
music masters		1257		
physical education masters		1340		
drawing masters		1403		
handicraft teachers				
- woodwork and metalwork		1237		
- needlework		1299		
domestic science teachers		1401		
Vocational teachers	1522	1450	72	36.3

TABLE 4

Lessons per week and percentage distribution of total working time by teacher group

Teacher group	Number of Lessons per week	Distribution of total working time (in%)		
		Lessons	Planning, preparation and follow-up work	Other work
Primary school teachers	30	51	26	23
Elementary school teachers	30	49	29	22
Teachers for special education	26	47	24	29
Secondary school teachers (theoretical subjects)	24	38	36	26
Music masters	30	58	20	22
Physical education masters	27-30(x)	48	25	27
Drawing masters	30	50	26	24
Handicraft teachers				
- woodwork and metalwork	30	57	20	23
- needlework	30	55	25	30
Domestic science teachers	30	52	28	20
Vocational teachers	36	57	18	25

(x) usually 28.

Traditionally, the school calendar comprises a number of holidays throughout the school year. Some school days are also used for sports, masters' meetings, teachers' further instruction, etc. ULA tried to determine for 1968-1969 in the schools surveyed the number of lesson periods lost due to these various activities. According to the statutes for the comprehensive school, there are ten holidays which fall on weekdays, four to eight days set aside for sports and excursions and five days to be used for teachers' further instruction. ULA found that during the forty weeks of the school year, instruction was given for the equivalent of thirty-four weeks. In addition, pupils spent the equivalent of two weeks for sports and excursions, so that the real loss for the pupils was only four weeks or ten per cent of the school year. The loss was even less for the teachers because they must take part in the teachers' meetings and further instruction and at the same time participate to some extent in the sports and excursions organized for the pupils.

In the plan of instruction for the comprehensive school, great importance has been given to the planning of teaching. ULA found that the teachers used only between one and two per cent of their working time for long-range, comprehensive planning; most planning was directed towards the next lesson. Great differences were found between the various teacher groups as can be seen from Table 5 which rates the groups in descending order.

TABLE 5

Hours per year devoted to planning by teacher group

Teacher group	Hours for planning
Secondary school teachers (theoretical subjects)	186
Physical education masters	147
Elementary school teachers	145
Primary school teachers	113
Domestic science teachers	112
Teachers for special education	108
Drawing masters	95
Music masters	82
Handicraft teachers	
- needlework	64
- woodwork and metalwork	42
Vocational teachers	60

ULA also examined the time spent on written work by the various teacher groups. Primary school teachers spent 100 hours per year on such activities, elementary school teachers 140, and secondary school teachers 152. Most of this time for the primary and elementary teachers was spent on correcting exercise books and for the secondary school teachers on correcting written assignments. The other teacher groups spent very little time on written work. For typing and duplicating ULA found that no teacher group spent more than 30 hours per year. It is worth noting that such a large proportion of the teachers' work time is devoted to this type of activity despite the fact that there is no examination at the end of the comprehensive school.

ULA examined many of the same groups of activities that had been surveyed in the former schools. It was found, for example, that the physical education teachers spent 48 hours per year on sports and excursion activities whereas the other groups of teachers spent far fewer hours (between 3 and 23). In meetings, primary and elementary teachers spent only half an hour per week or 20 hours per year, secondary theoretical subject teachers 44 hours and other groups of teachers some 30 hours. The fact that primary and elementary teachers spend roughly half the time that others spend in meetings can be accounted for by their quasi-total responsibility for the instruction of a given class of pupils. Secondary school teachers who are responsible for the instruction in two or three subjects only, but of several classes of pupils, obviously need more frequent opportunity for consultation. The data on time spent on meetings are of particular interest in the sense that the amount of time spent might have been expected to be much greater in the comprehensive school at this time.

The time used for other contacts was roughly twice that spent on meetings, but closer analysis of the data revealed that those teachers who spent less time in meetings had a larger number of other contacts and vice-versa so that, on average, all groups of teachers devoted some six per cent of their total working time to these two activities.

The syllabuses which define goals and guidelines for the comprehensive school (1) emphasize the importance of contacts with pupils and parents. It may be somewhat surprising, therefore, that teachers spent only 20 hours per year on contacts. This means, for example, that an elementary school teacher with a class of 30 pupils used one minute per week on average for contact with each of his pupils or their parents, while for a secondary school teacher with some 200 pupils, contacts were reduced on average to only a couple of seconds per pupil. Carrying the analysis still further, these figures reveal that there were many parents and pupils with whom the teacher had no contact outside the classroom. Since many teachers spend far more than 20 hours per year on contacts, it must be concluded that many others have hardly any pupil-parent contacts. It is important to have established this fact by statistical research.

ULA also surveyed the time devoted to studies and further instruction. It was found that teachers studied for a total of three to six hours per week, between two and three hours in relation to their mastership and as many as four hours on other work. If these figures seem high, it must be remembered that the comprehensive school was a new type of school with new goals and new curricula.

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(1) Lgr 62 and Lgr 69.

The results reported in this paper are only a few examples of the data collected in ULA's research on the comprehensive school. More material, which has not been published because of high costs, is available to scientists in the Central Bureau of Statistics.

IV. A STUDY IN DETAIL OF THE TEACHERS' WORK IN A SELECTED COMPREHENSIVE SCHOOL

In the statement of ULA's tasks, the Minister of Education proposed that observations be made in one or two schools of the teachers' work. Although such a study cannot give representative results in a scientific statistical sense, it can offer an example of concrete information regarding teachers' work. ULA undertook such research in a comprehensive school in Stockholm (1) where 58 of the volunteers in a 61-teacher school were asked to participate.

The research was divided into two parts: a study of the lessons and a study of all other activities required of a teacher in connection with his mastership. The surveys lasted two weeks each.

They were carried out with the assistance of engineers and efficiency experts. Teachers were asked to use the school premises for all their work and experts recorded their activities at randomly selected points in time. The study of lessons consisted of a procedure whereby the teacher was asked to record for each lesson his particular activity at five different points in time.

The advantages of this method of observation are that the classroom situation is hardly disturbed, there is little expense involved and preparation is simple. The precise points in time, for example, were indicated by a short ring of the school bell.

Study of activities in the school in Stockholm gave, in most instances, the same results as the other ULA surveys. However, as the total number of activities in the Stockholm school survey was greater (2), a more detailed view of the teachers' work was obtained.

The lesson survey had not been carried out before in other ULA surveys. It was designed to illustrate the teachers' activities and, at the same time, all factors during the lesson which had a disturbing effect on the pupils' learning. ULA's assumption in devising the second category was that a disturbance affecting only the teacher is of less importance.

Among the activities surveyed were the following:

- Pupil placement in the classroom and in groups
- Attendance control
- Educational activities

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(1) Engelbrektsskolan.

(2) 274 rather than the 61 used in the general comprehensive school survey.

- Film, television and radio commentary
- Planning of pupils' work, individually or in groups
- Supervision of pupils' work, individually or in groups
- Guidance of pupils' work, individually or in groups
- Achievement control
- Supervision of pupils during lectures, radio and television broadcasts and films
- Classroom instruction.

Among the factors having a disturbing effect on pupils, the teachers observed the following:

- Lack of, or defects in, the classroom, educational material or tools
- Pupil tardiness
- Illness, accidents or other unforeseen circumstances
- Pupil misbehaviour
- Administrative interruptions
- Contacts not related to the mastership
- Noise.

ULA found that the lessons were disturbed twelve per cent of the time in grades 1-6 and six per cent in grades 7-9. Correction of pupil misbehaviour accounted for five per cent of the lesson time in grades 1-3, seven and a half per cent in grades 4-6 and three per cent in grades 7-9.

V. RECENT CHANGES IN WORKING CONDITIONS

At the time of the ULA survey of the comprehensive school in 1968/69, only a few teachers had been trained to teach in this type of school. The colleges of education and the teacher training schools adapted their teaching to the principles of the comprehensive school with much delay. Today, however, all graduates are schooled in the new working conditions. In addition, the older teachers are often eager to learn new methods and this fact has greatly facilitated the introduction of team-work teaching in Swedish schools since 1969. More planning and preparation are done in teachers' meetings. Educational materials have been specially designed for the new school, tapes and filmstrips are more frequently used and pupils are being taught the technique of acquiring knowledge from their reading and of recording their observations in reports.

Recently, however, these methods have been criticized: oral reading has been greatly reduced and is almost non-existent in the upper grades; furthermore, there is little opportunity for training in speaking, a serious fault given the rather silent nature which tends to characterize Swedish behaviour. These two aspects will probably soon be changed, possibly in the current school year, since no directives are needed from the educational authorities.

Other changes include the more frequent teaching of handicapped pupils in regular classes. Special education teachers assist some hours each week when the handicapped pupils are taught separately or are aided during the lesson.

The most important difference in the comprehensive school between 1968/69 and today lies in the new syllabus (1) in force since the school year of 1970-71. The change in syllabus, however, does not seem to have altered the working conditions of the teachers very much.

For the future, a committee (2) has been set up and assigned the task of examining the internal work in school with a view to proposing reforms. Since the Government has declared that these reforms must not give rise to increased costs for public education, it is evident that the reforms cannot be accompanied by an increase in working hours for the teachers.

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(1) Lgr 69, passed in 1969.

(2) Utredningen om skolans inre arbete - SIA.

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III

NEW PATTERNS OF TEACHER TASKS

A REPORT ON EXPERIENCE IN THE MALMÖ REGION

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SUMMARY

The present report on those development and research activities in Sweden which have had an impact on teacher tasks bases its findings on experience in the Malmö area. Nevertheless it is written within the general frame of reference of the development of the whole Swedish school system roughly during the decade from 1962 through 1972, during which decade the nine-year comprehensive and compulsory grundskola was established, at the same time as major reforms were proposed and also introduced on other school levels. Primarily, the Malmö activities aimed at solving the essential problem of realizing a combination of individualization and social education as a means towards achieving the main objectives of education. From various angles, several development and research projects approached this problem, as described in the report. Out of the activities implicit in these projects emerged new patterns of teacher tasks or, rather, changes in the total personnel organization and role division within schools.

It is on this change in teacher tasks that the descriptive and analytical parts of this report are focused (Chapters II, III and IV, respectively). The background material has been furnished both by the Educational Development Centre of the Local Education Authority of Malmö and by the Department of Educational Research of the School of Education in Malmö.

The emerging new patterns for teacher tasks have formed the basis for policy measures taken on central as well as on regional and local levels. However, to a great extent they still pose problems which have to be tackled and studied, and possibly will also lead to further policy measures. The possibilities of certain measures are at present being studied by major governmental committees (see Chapter V). In general, the Malmö innovations have exerted a great deal of influence upon the development of the Swedish school system in recent years.

The following points form an attempt at summarizing the main conclusions that seem to emerge regarding new patterns for teacher tasks, the conditions under which such patterns may further develop, and the policy measures which seem to need to be taken for this purpose. They are mainly conclusions which it would seem possible to generalize and to apply also in a non-Swedish context; this is why they have been given a fairly general form. No attempt has been made to distinguish between issues which have already led to policy measures in Sweden and issues whose future implications are still being investigated.

- The Swedish school system, like those of most modern democratic and industrialized societies, aims at the all round development of its pupils as individual personalities and at the same time at making them grow into good citizens of the society of to-morrow. The major means towards these ends are individualization of instruction and emphasis on the social development of pupils.

- A school which aims at combining these means for achieving its basic objectives needs to develop in the direction of increased flexibility in the use of its resources as well as in the several activities of the school.

- Working in this direction, the innovational and research work in the Malmö area during the last decade has come to mean a movement away from a static and rigid system (regarding the use of teachers, grouping of pupils, scheduling time, subject division, planning of school buildings, use of teaching materials) towards a dynamic system (regarding the same basic resource factors of the system), entailing continuous change, primarily planned by heads, teachers and pupils in co-operation.

- As a consequence of this development, new patterns have emerged for teacher tasks. In general, they may be characterized as a development both towards differentiation and towards integration.

- At the same time, new categories of personnel in addition to the teachers are introduced into the schools.

- New working methods and a different pedagogical organization are placing new demands upon the school building and the educational material. In this way the teacher's tasks also have changed.

- In general, the teacher's primary functions have become more pupil-centered, with more emphasis placed upon the pupil's social and emotional development, but also upon the handling of new teaching aids.

- Relatively more stress is placed upon the teacher's secondary functions, such as co-operation and administration.

- Teachers have to share decision-making and responsibility with several adult persons and with the pupils.

- Special efforts have to be made to develop the capacity of the pupils to take part in the decision-making process in the school.

- Working within a system of continuous change and innovation requires increased knowledge, new skills and different attitudes on the part of the teachers.

- Systematic change in teacher training as well as c ntinuous in-service training of teachers are major prerequisites for innovations to grow and to prevail.

- The schools need personnel resources, e.g. heads of departments and educational advisors, to help teachers to meet new tasks.

- Representatives of t achers and other persons involved ought to be able to exert some kind of organized influence upon the process of change.

- Flexible frames for financial and administrative planning are needed for innovations to be handled in the proper way.

- Specific resources are needed for the management of innovations in the initial phase as well as for their implementation. However, in principle, the innovations themselves should be developed within the existing financial framework.

- In order to maintain the dynamic character of a system of development, a flexible use of teachers, other personnel and material must be allowed for inside a given framework.

- For the dissemination of locally or regionally developed innovations a dialogue should be maintained between local and central bodies.

- Educational development centres have proved valuable instruments for the emergence and implementation of innovations through teachers, administrators and local authorities.

- A close relation to an educational research department has proved fruitful for the planning and evaluation of locally initiated innovational activities.

I. BACKGROUND

1.1 School Reform and Development Work

The Swedish school reform of the mid-twentieth century has been not only, perhaps not even primarily, an educational reform, but a major social reform. The common nine-year grundskola (the comprehensive "basic" school) created in 1962 was designed to offer equal educational opportunity to all Swedish school children between 7 and 16 years of age, irrespective of their geographical, economic or social position. The outcome of twenty years of preparation, ten of which were devoted to extensive practical experimentation, was an organizational model of heterogeneously composed classes, basically remaining the same from the first year through the eighth (as from 1970 through the ninth). The upper level of the secondary school was also reorganized in 1971 into an integrated "gymnasieskola" of 2 or 3-year courses (4 years for certain technical courses), offering 23 different lines of study (corresponding to earlier academic or vocational courses), now in principle all opening up the road towards the university.

Both in the grundskola and in the gymnasieskola, the span of intelligence and interests in each class unit has widened immensely. When teachers asked how it would be possible to meet such variety within the same class, they were told that the answer was individualization, within the framework of the class unit of, at the maximum, 30 pupils. The class as such was to form the basis for the social education of the pupils. To implement the task of individualization, combining it with the equally important social education, remains the most important and the most difficult task of Swedish teachers. If the school reform was engineered and tested in the 1940s and 1950s, it was organizationally achieved in the 1960s and the early 1970s. On the present decade of the 1970s rests the major task of realizing the major objectives of the school reform on the inner level, of combining individual teaching and education with social education.

Thus, as early as the 1960s, practical experimentation towards the realization of these aims was started. It would be an over-simplification to say that all research and development work in Sweden in the educational field has had its roots in this double task of the teachers and the whole school, but certainly the urgency of the task has had far-reaching consequences. In the classrooms, teachers often rather desperately, sometimes constructively, started asking for ways and means of fulfilling their new tasks. Of the teachers who were to teach at the upper level of the grundskola (the level of the 14-16 year olds, where difficulties were felt to be the greatest), some had experience in teaching the pupils of the old realskola, most of whom had been

headed towards further education of an academic type, and some had been teachers in the folkskola, for those who had entered vocational life after an average of 8 years of schooling. In favorable circumstances this mixture of teacher competence in the grundskola became an asset, as some teachers contributed more subject knowledge, others more experience of work with slow learners, to the common task. More or less spontaneously, teachers started trying out and developing new methods, producing new kinds of material, developing new modes of work often in terms of cross-disciplinary projects, of team teaching, of increasing pupil activity. In general it was felt imperative to break loose from traditional face-to-face teaching. Other traditional routines of teaching were also increasingly questioned.

1.2 Development Work in the Malmö Area

It is against this background that the development work of the 1960s and 1970s in the Malmö area has to be seen. It has been carried out within two different frames of organization - the Malmö city school system and the Malmö School of Education - but there has all the time been close interaction between the two organizations and, also, the objectives of the work attempted have been closely related. Broadly speaking, the objectives have been to realize the overriding objectives of the Swedish school reform, as outlined above.

a) Development Work within the City School System: the Emergence of the Educational Development Centre (EDC).

Early on in the period of the introduction of the grundskola, the need was felt for a more systematic attempt at developing suitable modes of work, primarily for individualization and social education. The experience gained from a couple of individual schools where experimental work had been carried out in the 1950s was incorporated in the creation of the Educational Development Centre of Malmö, which started its work in 1964 after a parliamentary decision of the same year had made the creation of such centres possible. From the very beginning, the work of the Centre related itself to and aimed at incorporating efforts by teachers who were already at work, trying to find workable ways of realizing the objectives of the grundskola. With these existing teacher initiatives as points of departure, the Centre developed some series of projects, all in the spirit of the parliamentary decision which formulated the objectives of the educational centres as being: "/to find/ practicable ways of giving effect to the intentions of the educational reforms proposed or already decided, also at the levels higher than the compulsory school, and to facilitate the progressive revision of the curriculum." (cf. Teschner, W.P., OECD/CERI, Paris, 1973)

Three basic areas of work were the following:

- The selection and structure of subject matter.
- The pedagogical organization of the school: pupil grouping, team teaching, flexible scheduling, etc.
- The care of pupils with special needs.

Though these areas represented different points of departure for development work, they gradually merged and seemed to be only different aspects of the same emerging pattern of the new school. Obviously, such a school also needed a new shell. Implications for school building grew out of actual pedagogical experience and were put to use when a series of new schools was to be built in the Malmö area. The new school buildings were all created as open plan schools suitable for an open and flexible education.

b) The Research Activities of the Malmö School of Education

As from 1962, the Malmö School of Education started its work full scale, that is giving primary school teachers (for the lower and middle level of the grundskola) their complete training and giving subject teachers for the upper level of the grundskola and those of the gymnasieskola their pedagogical training after an academic degree. At about the same time, the Department of Educational and Psychological Research, attached to the School of Education, started its work. When the Educational Development Centre came into being, the president of the School of Education and the head of the research department heartily sponsored the initiative and became members of its planning group. As research and development projects of the Department of Educational Research began to take shape, field tests were mostly carried out in the Malmö city schools. Thus, from the very beginning, a positive and dynamic relationship developed between the leadership of the EDC and the Department of Educational Research.

One of the main concerns of the new research department was how to put into practice the principle of individualization of instruction. The principal solution was to be systems of method and material, mainly for the teaching of mathematics and German (the IMU and UMT projects).

1.3 Advantages and Drawbacks of Development Work in the Malmö Area

After the parliamentary decision on the grundskola was taken in 1962, Malmö was the first major city to introduce all three levels (lower, medium and upper levels, each of 3 years) as early as the fall of 1962 (cf. Teschner - op.cit. p 325). Leaders within the Malmö directorate of schools had been actively engaged in the central committee work that prepared the parliamentary decision and therefore shared a keen interest in its implementation. The local Board of Education was favorable and able to influence the City Council into giving relatively generous amounts of money towards new educational equipment. At the same time, library and audiovisual centres were established for the whole school system, offering technical service and pedagogical

advice, to some extent also being a central store for films, and such tapes, records, books etc. as are not in constant use at the schools. The existence of these centres makes it possible for school librarians to take a more active part in the actual teaching situations, being liberated from the greater part of the technical chores.

Furthermore, the city authorities made it possible for the Board of Education to create an organization of educational advisors, supplemented by expert groups of teachers who offered active help to their colleagues in fulfilling their new and difficult tasks. In these expert groups, teachers of different competence pooled their skills in order to help the city authorities and their colleagues with the selection and production of suitable material and with the introduction of new methods of work. In addition, the resources for guidance and pastoral care at each school were augmented. The efforts of teachers and principals were supplemented by school psychologists, social workers, vocational guidance teachers etc., and teams for the pastoral care of pupils were developed.

The fact that a large School of Education was at work in Malmö and rapidly expanded its field of work during the 1960s also served to raise the level of pedagogical interest and of professional skill in Malmö schools.

However, there were also drawbacks as regards development work in the Malmö area. In the beginning of the sixties, the city school system was still short of classrooms, an old headache with the city authorities. During the decade, the city grew rapidly (this trend has been reversed as from 1971). The decade 1962-1972 represented a boom in school building, a heavy load both economically and administratively, but also an incentive for developmental work within the domain of school building (see below on the Samskap project).

During the sixties the research activities of the Department of Educational Research were to be started, as it were from scratch. Its main relationship in planning and financing was with the National Board of Education. During this period, no personnel or financial resources were earmarked for research in cooperation with the EDC. Although research workers took an active part in development projects within the EDC, they had to do this more or less on the side in their spare time and with very little economic remuneration. For the EDC work as a whole, only very limited means were available, partly deriving from the National Board, partly from the local authority (cf. Teschner op. cit., p. 349). The leadership rested with the city Board of Education directorate, i.e. with people who had heavy administrative responsibilities as well as those for development work. These circumstances may explain to some extent the rather unsystematic character of the planning and performance of the EDC projects.

Not until the beginning of the 1970s, when EDC was transformed into another organizational pattern called MED, did the relationship of field development work and research accompaniment find its proper organization, though the resources are still scarce and the future uncertain. This means a partnership in all stages of planning and execution of development and research projects which is what both parties have always wanted, but for various reasons it is only slowly emerging and finding its organizational structure.

1.4 Development Work - for What?

As has already been repeated over and over again, the development work of the Malmö EDC, and also to a great extent that of the Malmö Department of Educational Research, grew out of a need to solve the major problem of implementing the new school reform, that of combining individualization and social education. It should be noted that a change in the pattern of teacher tasks was never a primary aim. The change in teacher patterns, or rather in the total personnel organization and role division within schools emerged as one of several not originally calculated consequences of the developmental activities. It appeared to be a prerequisite for solving the major problems involved. Change in the physical facilities of the school was another. Yet another was the increased participation of pupils in the planning and administration of teaching, a development which naturally gained impetus through the world-wide student movement in the late 60s. How to institute and develop a vital school democracy became another important problem to be solved within the framework of research and development activities.

Thus, gradually a new pedagogical organization emerged as a result of these research and development activities. When the National Board of Education planned a revision of the 1962 curriculum for the grundskola, the Lgr 62, the Malmö experiments formed one of the main sources of inspiration for working out an organizational model, called the PEDO model. During the years 1967-1970, this model was tried out in the new EDC in Skellefteå as well as in Malmö, subsequently also in other places. This experimentation formed a basis for important aspects of the new curriculum, the Lgr 69.

1.5 The Cost Aspect

The economic framework for schools where development work was carried out was mainly the same as in other schools. As a small remuneration for time given to conferences, planning and reporting, the personnel engaged were given annual fees, seldom amounting to more than the regular pay for a couple of teaching hours. Basically, however, the allotment of teaching staff in these schools was figured out according to the same rules as for the whole school system. These rules are part of a complicated system of state grants, of which an outline is given in an Appendix to the Report. As teacher salaries are mainly financed through state grants, whereas building and equipment as well as personnel other than teachers are mainly paid by the local authority (the state also gives grants towards the cost of new school building), it is hard to convert teacher time into any other kind of resource for the school. However, a special government decision made it possible for experimenting schools to transform teaching time into time for non-pedagogical aids, teaching material etc.

1.6 Teacher Reactions to New Patterns

The new patterns of teacher tasks which have emerged as a result of development and research in the Malmö area have been created by teachers who have wanted to solve the problems that the new schools posed. This, perhaps, is one of the reasons why teachers' unions were slow to react to what was happening. Only around 1970 did they seem to discover that radical change was taking place as a result of development work. Their reactions were sharp, and since then, there have been constant discussions. Conflicts have sometimes arisen, at present aggravated by the fact that Sweden faces a surplus of teachers.

II. GLIMPSES OF NEW PATTERNS

2.1 Introduction

Before starting to describe the various research and development projects through which teacher patterns have gradually been changed, let us invite you to visit five Malmö schools where new patterns are actually in practice. We have chosen them so as to illustrate five different aspects of change. They also reflect varying processes of change.

2.2 A School for Co-operation

We will start by letting you look into the diary of a teacher of the nine-year comprehensive grundskola. He took part in the initial effort of trying to find new subject content and structure in order to satisfy the needs of the widely heterogeneous classes of the new school. He now works in a school where the whole pedagogical organization has changed as a result of successive development activities, of which he himself is one of the engineers.

From a Teacher's Diary, Spring Term 1973

Sometimes I do wonder if it wasn't easier before, when one knew which pupils and which classes to meet every day. One knew what subject to teach and which book to use. There was law and order. Sometimes there were complications: one entered the storeroom at the same time as a colleague, looking for the same map or the same book-box. Then one suspected that something was going on in the adjacent room and that that "something" might be connected with one's own work. After nine years of experimentation with cooperation in various forms, it has now gone so far that one can hardly do anything on one's own. One has grown dependent not only on colleagues but on teachers' assistants and on pupils, in a way that could not be foreseen when it all started in 1964. The relationship towards the school administrators and the caretaker has also altered. It feels as if walls have fallen down and borderlines been erased. The borders between different subjects have disappeared to a great extent. At least the colleagues of my teaching-term have long since stopped putting subject-labels on the study project of our year plan for social orientation subjects. It's impossible to compare the old and the new way of working. The work is much freer now.

Today we had one of these typical swirling days when most things happened, both what was supposed to happen and things not at all foreseen. In our combined store-room

and work-room our teachers' assistant, Ulla, had already started to sort heaps of materials for the first morning session which would start an hour later. We were to begin with a large class, where some slides and a guest-lecturer from the County Environment Campaign would be the extra stimulus. After long discussions our work this week has been entitled "Environment in Centre".

There are seven teachers and one assistant in our team and together we are responsible for all the teaching of social orientation subjects in the three grades (7, 8, 9) of the upper level of the compulsory school, 18 classes in all. Each working unit comprises approximately 90 pupils and consists thus of three classes with a parallel time-table and three periods each per week. Each period has 80 minutes. All working units have their own three teachers, each one responsible for one class in the four social orientation subjects together. But we are often both four and five teachers working together, as we have about 25 so-called resource-hours at our disposal. These hours are distributed among the units according to need and decided upon at the weekly conference. Ulla notes all the formal decisions which are the basis for co-operation and for all the practical details. Ulla has become a champion at keeping all the papers in order, minutes, time-tables, stencils etc. We have a whole wall (5.3 m.) full of pigeonholes for all these sheets of paper. Now my colleagues, Gunnel and Kenneth, had come too. Together we work with 7a, 7b, and 7c. All in a hurry it was decided that they could wait for our pupils up in the class-rooms and come down to the auditorium when we started. Ulla and I would go down earlier to get the projector and the black-out ready and to keep a look-out for our lecturer. It soon became clear that he had gone to the wrong school (unfortunately we have no sign with the name of the school) and he turned up ten minutes late. This, actually, did not create any problems, because the headmaster and his administrative assistant had taken the opportunity to attend our first large class of the environment project. These two gentlemen took their time in telling the pupils what they expected from this week's work.

When we got back to our class-rooms after the large class and set about the instructions for group work there was absolute confusion. As usual on such occasions I have the feeling of completely losing control of my work. Suddenly one is surrounded by pupils - not only from one's own class but also from others. There are always pupils who want to work with a friend in the parallel class. Many want to alter the tasks given or make their own. Some dash to secure books or papers, probably driven by some sort of fear that there won't be enough material for everybody. Someone wants to go home or to the library to fetch books they know "are much better". Some simply must have a cassette recorder otherwise they cannot possibly interview! And why on earth are there not enough cameras for all the groups and there is a camera without a flash-light!

At noon the weekly conference was scheduled. Not much was said about the current study project, as it had been planned during earlier conferences. Most of the time was spent discussing the outlines of the study project "Africa", which was to start some weeks later. This time two of my other colleagues, Ann-Kerstin and

Björn, were responsible for the planning and today they had invited an advisor from the museum to the conference. We wanted to know if study-visits could be arranged and if we might borrow some material from their archives. Study-visits were possible, but only for grade 9, as we would have to alter the time-table of other subjects too much if grades 7 and 8 were to be able to go to the museum too. Instead we were recommended to contact a shop for African handicraft which was willing to lend us things. Then Ann-Kerstin said that she had been in touch with a teacher of comparative religion at the University of Lund and that he had promised to come and tell the pupils about the religions of primitive peoples. Experts from outside are often more interesting than the usual old teachers.

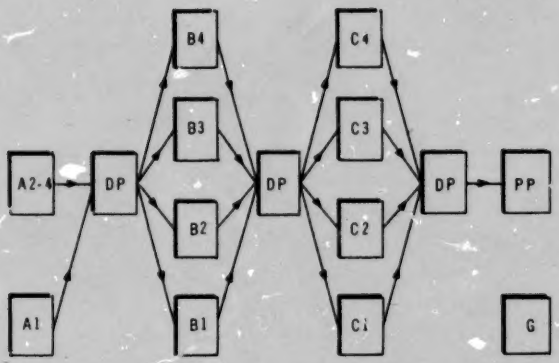
As I am the leader of the teaching-team I have the advantage of tutoring a small group of pupils for a couple of hours every week in our work-room. At the same time I can attend to some of the administrative duties. Today I asked the leader of the natural sciences teaching-team to come and have a look at our environment project so that later he would be able to adapt the more scientific oriented environment teaching in his sector to ours.

2.3 Individualized mathematics teaching - IMU in practice

Most of the teaching material used at Söderkullaskolan has been and to a great part still is produced in the school as part of the common planning by teachers and pupils with the assistance of teacher assistants. For subjects such as the humanities and science this seems to be an advantageous arrangement. For subjects like mathematics or foreign languages, where the training of skills forms a major part of the teaching and learning processes, the use of professionally produced, individualized instructional material would seem to be preferable. As mentioned above, one of the major preoccupations of the Malmö Department of Educational Research has been to produce such material and to test its effects. Let us see what it means to use the individualized material for mathematics, as designed for the upper level of the grundskola.

IMU is a system of teaching mathematics in a wholly individualized way in the classes 7, 8 and 9 at the upper level of the grundskola. The course is covered by nine modules. A module requires about one-third of a school year. Every module consists of 6-8 booklets (components) of 50-150 pages each.

Component A is common to all students, but each student works at his own pace. When the students have completed component A they do a diagnostic test (DP in the illustration). On the basis of the information provided by the test, the teacher assists the student in selecting a component B, of three possible alternatives. Then there is also a component C to be used in the same way. In the last version of the material components for group activities (G) and a special level for the intellectually weakest pupils, A1, B1, C1 have also been developed.



As soon as students have completed one module, they proceed directly to the next. No annual grades or marks are given. The large number of modules and components results in a great number of "possible ways" through the course (more than 10 million!).

There is a special handbook on method for the teachers that is applicable to all modules. This handbook describes a typical lesson in a large class composed of two or three ordinary classes:

a) The lesson is prepared during a conference held by the teaching team to determine which tests will be held, what group instruction will take place, who is to be responsible for the group instruction, which material is to be distributed to which students, etc. The assistant takes notes throughout the conference.

b) The group instruction, if any, is prepared by the teacher nominated.

c) Before the lesson commences, the assistant produces all the material required.

d) During the lesson the assistant is busy distributing and collecting material, supervising students carrying out diagnostic tests or solving problems, noting the student progress through the course, the extent of their homework, checking their attendance and so on. The assistant should be sufficiently familiar with the material to be able to answer simple questions posed by the students. In general, however, she will refer the

student to one of the teachers. Meanwhile the teachers circulate among the students, helping those who have got stuck, seeing to it that the students work carefully and in accordance with the instructions laid down, giving the students encouragement and spurring them on, discussing the results of diagnostic tests, helping the students to choose suitable sections for revision, etc. One of the teachers may be busy with group instruction.

e) After the lesson the assistant arranges all the material.

f) Before the next conference the assistant corrects the students' diagnostic tests and enters up all the data on the students' progress, etc. The scope of the assistant's work is normally subject to local circumstances but the following tasks are probably her most important ones:

- to attend the lessons
- to be responsible for the material
- to register the current work of the students
- to register student data
- to correct diagnostic tests
- to copy out and make stencils of material produced by the teacher for group instruction
- clerical duties of various kinds, including keeping the minutes at conferences, notes on group instruction, notes on absence.

g) At the next conference (a minimum of one conference per week per large class is necessary) the teaching team discuss their experiences, go through the results of the diagnostic tests, decide on measures to be taken following the results, for example individual revision or group instruction, survey the students' progress in their studies, decide whether any students require further encouragement, help, etc. The following questions are dealt with at the majority of conferences:

- How far have the students progressed with their work? How much homework have they been doing? Do any students need special homework?
- How have the diagnostic tests turned out? Which students need to revise their work?
- Ought there to be group instruction next time? What type of group instruction? Who is to organise it?
- Are there any students who have nearly completed their booklets? Which booklets should we recommend for their next phase?

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2.4 An Open Plan School

As a new pedagogical organization emerged, teachers found themselves hitting walls, which often seemed to be in the wrong place. The traditional school building did not fit the new pedagogical models. One of the results of development work in the Malmö area has been to design a new kind of school building which would function better than traditional ones for the new pedagogical models. These new schools can be characterized as open plan schools. What is it like to teach in such schools? Let us visit Ortagårdsskolan, an open plan school for 400 pupils aged 7-13.

It is half past eight on a September morning and the school day has just started. The seven-to-nine year olds are working in areas of varying character, some in rooms of ordinary class-room type (often coupled in pairs with a folding wall in between) partly in the adjacent study hall. There are no desks of the traditional type: the pupils are working at tables of varying size and shape, oblong or round ones, suitable for the work of two, four or more pupils. Study cubicules are also available for those who need a more isolated study environment.

About 20 7-year olds who have just started school are working with material directing them in an individualized way towards their first reading instruction. There are five grown-ups this morning working with this small group of children: the class teacher, two student teachers, one teacher specialized in remedial teaching and one teacher who knows the language of some of the immigrant children in the group. This latter teacher talks to the immigrants in their own language and is trying to find out what help each one is likely to need in order to learn Swedish as soon as possible. The remedial teacher sits down with those who have already shown, at this early stage of their schooling, that they are in need of extra support. Some of the others are walking around, registering the progress of the children in order to be able to make a diagnosis of their status or offering the fast workers new material as they finish their tasks.

The 8-year olds are having maths. Some of them have moved out into the study area (in all 330 m^2 for the 7-9 year olds) in order to be able to work with bulky material at a large table. Now and then a teacher visits them, giving individual help or assembling the whole group in order to explain an especially difficult new facet of the unit. After this strenuous exercise they relax for a while before starting work anew. In the other half of the study area (another 330 m^2), the juniors, aged from 10 to 13, are working with various tasks belonging to a work unit titled WORK, a rather comprehensive and not very precise title. The specification is contained in subthemes, with which they have to deal at ten different stations in various parts of the study area.

Let us walk around to some of the stations. The station Intellectual work helps the pupils understand how human thought may be formulated into programs which in turn may be put into computers, thus greatly reducing the burden of man's thought. At another station they have learned how machines have been invented to free man from heavy manual work. The processes are described on wall pictures and diagrams, the pupils see films and their comprehension is controlled on work sheets. At yet another station all the information is given on tapes - each child can listen to a tape spoken in his own mother tongue (this school has about one third immigrant children). Earphones are available for everyone and the pupils can be found listening to the tapes sitting at

tables or resting on the carpet. The greater part of the day, the pupils at this school can choose their working position themselves, and this to a great extent is true also for the teachers.

Carpets cover all the study hall save the so-called wet area. There a group of students are occupied with science experiments, designed to elucidate the theme "Work to produce food". This theme is varied as "Work to prepare food" in a workshop where pupils are making cookies, and being trained in the use of recipes. The workshop is a part of the studio. On each side of a central area for work with colour and form, workshops for wood, metal and textile work open up. A group is occupied with "Housing", employing varying kinds of material: plywood and more solid kinds of wood, foam rubber, paper, gum, fabricating models of houses for the past, the present and the future. In the open studio area, the furniture mainly consists of big tables standing free in the midst of the room. Some of the pupils in this area belong to the classes for mentally retarded children, which are integrated into Ortagårdsskolan. One of the objectives of this school is to try to draw these children into the project work.

The variations in tasks, modes of work, work material and positions when working seem nearly inexhaustible in this school. But there is still more to see. In an unfurnished room of large class-room size about thirty pupils are seated on the floor in a circle. In the midst of the circle two actors work at expressing "Understanding one another" as a human effort. They compete with one another: "I am better than you", tease one another:"This is my ball - you haven't got a ball". One of them gets angry, the other one desperate, crying. The other one to the pupils: "But I didn't mean this, I am fond of him. But I can't tell him that - or can I?" The children make suggestions, the actors are improvising, everybody is at work with the hard task of understanding one another and oneself and of expressing it. Here walls are needed - voices get loud, there is accompaniment on the flute and the drum, the action is very lively from actors and audience. But no furniture is needed and all stage properties go into a sack.

Thus the facilities and areas of various kinds which we have visited serve the purpose of offering space for manifold experiences for the children: through books and other printed material, through sound and pictures, through people, through discovery and creative activities, in drama and music. There is a conscious effort to overcome the traditional verbal dominance of the school, the more important as one third of the pupils have a mother tongue other than Swedish. There is careful and precise planning behind project work of the kind we have been watching. Teachers of varying training work and plan together, making it possible to vary the size of pupil groups, as teachers of immigrants and of special classes join with class teachers in planning and working, also using various aids and modes of work.

Flexibility in the use of space, flexibility in teaching and learning is a hallmark of Ortagårdsskolan of Malmö. But obviously there are contradictions in the pedagogical model used there. The careful planning of the project work aims at individualizing according to pupils' interests - but does it allow enough for the spontaneous expressions of interest by the children? And doesn't planning demand an exorbitant amount of preparation by teachers? And is there place for any common

planning by teachers and pupils together? Those responsible for the work at Ortagårdsskolan are fully aware that they are still at the beginning of developing their model of teaching. Project work takes about one week of the month - the rest is rather like traditional teaching. Project work aims at offering a basis of common experience to all pupils of one 3-year level of the school and this is why all should visit all stations - but they may spend more or less time at each, according to interest. Preparation takes a great deal of time for teachers - but they do it together and it would take more time for each teacher to work by himself. There are plans for a closer integration of project work and the training of skills, there are plans for breaking through the barriers between years and classes in skill training too and one hopes to engage the pupils in planning projects. There is still a long road ahead.

2.5 The FOL Project: a Description of Co-operation in Action

Swedish children do not start school until the age of seven, a late age internationally. Also, the pre-school system has no long tradition in Sweden where, on the other hand, day care centres are well developed to receive from an early age the children of working parents. Where pre-school classes do exist for 6-year olds, they work according to a tradition that is very different from that of the school. This confronts the child with a rather high but artificial barrier to surmount from pre-school class to primary school - and has led to attempts being made to coordinate the educational efforts of the two institutions in question. The everyday work of the FOL project, which has this as its main objective, is reflected in the following report.

Miss A, a primary school teacher, and Mrs. B, a pre-school teacher, have for the last term been co-operating in various ways. They have exchanged information about and discussed the methods, content and material used in the two school levels. Miss A has been able to participate in the extensive educational activities pursued in the pre-school activities that she had previously known little about. Mrs. B now knows more about what awaits her pre-school children when they start school and can prepare them for the transition more effectively than before. The teachers also make use of each other's experience and special knowledge on the occasions when the children work together. Just now Miss A is visiting Mrs. B in order to plan how they are to co-operate the following day. Miss A has noticed that some of the pupils in her class have difficulty in handling a pair of scissors and need to train their skill in cutting. It would be a help if they could practise in the pre-school, where easily-handled scissors are available. The two teachers discuss what type of work might be suitable and which children need such training. In addition Anna, who has been even more restless than usual in school recently, might be helped by being able to choose what to do more freely than is possible in school. At the day nursery there are several children who are to start school next term and one boy who is past school age and who needs a little extra contact with the school before he starts because of social difficulties. It is desirable that this group should visit the school on the next occasion that the two levels co-operate. "Tomorrow morning would be a good time", says Miss A, "as we are going to work with counting rods at school." They agree that five children from each level should exchange.

The next day the pre-school children are told that they are going to visit the school. They react very enthusiastically and those who are not going on this occasion are disappointed, but are reassured that it will be their turn another time. The schoolchildren have already arrived at the day nursery, where they feel at home after earlier visits, and are already climbing on the wall bars and sliding down the slide in the large playroom.

The pre-school children find their own way to the school. It is on the other side of their outdoor playground, where children from school and pre-school often play together. At school all the children are waiting for their "guests" and greet them loudly when they arrive. They make immediate contact by saying "Peter, come and sit by me!", "Karin is going to sit by me today!" etc. Under Miss A's guidance, the children are soon co-operating over their tasks in mathematics with the help of the counting rods. The schoolchildren sometimes help the younger ones, but it also happens that help is given in the other direction. During a pause in the work, they play a musical game together and the day nursery children sing a newly-learnt song for the schoolchildren. At th end of the lesson there is just time to play a counting game in which figures and numbers are to be combined, one schoolchild and one pre-schoolchild work together in pairs. "Is it over already?" one day nursery child asks in disappointment when the school bell rings and it is time to run back to the day nursery. On the way back they meet the schoolchildren who have been to the day nursery and are now on their way back with stick-on pictures that they have cut out during their visit there. The children tell their teacher they have also been playing to music and with musical instruments. Karin even had time to make a boat at the carpentry bench. Everyone seems pleased with their visit.

The first time this kind of co-operation took place, however, the pre-school children had been a little nervous of going to visit the school. There were so very many children there and a strict teacher, but now the pre-school children have discovered that "school's not too bad" and are looking forward to when they start school "properly".

2.6 Attempts at School Democracy at an Upper Secondary School

It is a common trait of all the development pr jects in the Malmö area that they aim at making the pupils increasingly responsible for their own learning and for the work of the whole school. But school democracy is no easy task, as is shown in this description of a confrontation between very independent secondary school pupils and school authorities, a confrontation studied and reported by research workers of the Malmö Department of Educational Research.

At Källängsskolan in Malmö, which is a 3-year secondary school, experiments with different forms of increased pupil influence on the forms of school work have been carried out since the school year 1968/69.

A larger number of representative bodies than is usual in Swedish schools has been created. Apart from staff meetings and what is known as a co-operation committee with representatives of different groups in the school, a library committee has been

formed and a group for co-operation on general educational questions. The pupil representatives have been given the opportunity of continuously informing their classmates about the decisions made in lesson time.

An investigation carried out during the first year of these activities revealed a rather half-hearted interest among the pupil representatives in participating in the committee work, and their information to their classmates did not function very satisfactorily either. The reason given by the pupils for the lack of interest was that they had too little real influence in important questions, which were regulated by forces outside their own school, such as central curricula and directives, as well as by decisions made by the local board of education and other authorities.

An event that shed light on the opportunities the pupils have of asserting effective influence on the teaching if they are given the chance, and that showed both the commitment that can then be created and also the subsequent difficulties that can arise was the "indoctrination campaign." This campaign had been planned by SECO (Sveriges Elevers Centralorganisation = The Central Organization of Swedish Pupils) and was intended to be conducted in secondary schools throughout the country. It followed in the wake of the wave of intense student activity that swept the world during the late 1960s. The central committee of SECO saw it as its task to make the pupils aware of the function of schools and textbooks in indoctrinating the pupils to accept the existing structures of society. They were given a week in which they were allowed to present totally pupil-oriented activities, such as general meetings to which representatives of different branches of society were invited. A list of questions for discussion in class had been drawn up in the hope of creating a more ciitical attitude towards textbooks and the content of the teaching. The idea was also that proposals for changes in the school should be put forward in order to influence the conditions in the school.

At Källängsskolan the week was introduced with a play about the school of a rather provocative nature, intended to clear the way for a discussion between teachers and pupils. When accepting the campaign,the school leaders had laid down as a condition that the work in the classes should be carried out solely with the help of the school's own resources. This had not been respected by the leaders of the campaign, as university students with clear political commitments had been invited to lead the discussions. This, together with the fact that the placards and other material produced by the central campaign management were considered by many pupils to have a distinct political bias, resulted in a so-called counter-group being formed among the pupils.

The week was completed with a full day of discussions at general meetings, in which representatives of the school leaders, the Malmö School of Education and the University of Lund were invited to participate. At the end of the day a resolution was adopted. After a very hard debate, the counter-group also joined in the passing of the resolution. This resolution was worded as follows:

"Resolution passed after final day of discussion

This is an attempt to sum up the points of view that have emerged during the discussions at Källängsskolan on 21st November 1969.

1. Marks

We demand a discussion of the marking system, because of the following criticisms that have been made of the present system:

a) The marks create a competitive situation which makes co-operation and solidarity between pupils difficult.
b) The marks create a gulf between teachers and pupils.
c) The marks lead to a fight for points that overshadows the interest in the subject.

2. Text-books and curricula

We demand that:

a) The study material should devote more space to different opinions.
b) The source material should to a greater extent be rendered as an account.
c) The curricula and study material should be subjected to further penetration on a central and local level.

3. The relationship between teacher and pupils

There is an unnatural antagonism between teachers and pupils which must be overcome. It arises above all because of the marking system. The antagonism makes it difficult for both teachers and pupils to enjoy the degree of freedom of speech that would be desirable.

4. School democracy

The school is our place of work. Therefore we demand that:

a) All those working in the school should have an equal opportunity to participate in decisions.
b) This right to participate should apply to all school levels.
c) We are given full insight into all questions and decisions that affect our situation."

The final outcome of the campaign was a polarization among the pupils and partly among the teachers. The antagonism between radical and conservative groups among the pupils had for a time a paralysing effect on the work of the pupils' council. Many pupils, however, gained a positive impression of the possibilities for the pupils to influence their school situation and an increased will to do so in various contexts. Some of the exaggeration and one-sidedness of the pupils' planning made the teachers and school leaders less inclined to allow the pupils to take charge of more extensive units of study. This type of campaign, in which for a short time one theme is allowed to dominate almost all the activity in the school and the pupils are allowed to participate in the shaping of it, has since become more common.

The attempt to increase the degree of school democracy at Källängsskolan has shed light upon the constant dilemma that arises in such experiments. If the pupils' influence is too restricted and formal, it does not succeed in motivating the pupils and changing the usual passive attitude to one of responsibility and co-influence. If, on the other hand, the pupils are given a great deal of freedom in influencing their own situation at school, the contradictions in a modern industrialized society can give rise to activities that create conflict within their own ranks.

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III. THE EMERGENCE OF NEW PATTERNS - DEVELOPMENT AND RESEARCH PROJECTS

3.1 Introduction: Organization and Problem Areas

Development and research work in the Malmö area never formed one consolidated and systematic effort with closely defined objectives. To find out what happened, even in a relatively limited area, such as the emergence of new patterns of teacher tasks, one has to study various development and research projects, mainly carried out within two different organizational frames, the Educational Development Centre of the Malmö City Board of Education (the EDC, after 1971 called the Malmö Region Educational Development Activities or MED) and the Department of Educational and Psychological Research of the Malmö School of Education (the DER). The points of departure for these projects, which were initiated and took shape during a decade as from 1964, varied. Those which interest us here all had as their main objective the finding of "practicable ways of putting into effect the intentions of the educational reforms proposed or already decided", to quote again the words of the Minister of Education in 1964 (cf. Teschner op. cit.). Through the work done in these various projects, new patterns of teacher tasks emerged, in some ways as a by-product but still as a major presupposition for the realization of the stated objective. In this chapter, in order to see how this happened, we shall study somewhat more closely some projects, or, rather, groups of projects.

As an introduction, short outlines will be given of the major concerns of the two organizations EDC (later MED) and DER. However, in the further descriptions of the groups of projects we shall not maintain the distinction between projects belonging to one organization or the other. They each deal with one problem area, which is approached in various ways and it is the outcome as concerns patterns of teacher tasks which interests us, not the organization of the projects as such. Further, projects having their origin in development work in the field often grew into or were accompanied by systematic research projects. For this reason, also the distinction between projects belonging to one institution or the other would be artificial for our purposes.

The main problem areas which are of special importance for the emergence of new patterns of teacher tasks are the following:

A. Changing subject content and structure - the emergence of a new pedagogical organization.

B. The construction of individualized teaching material.

C. Integrating handicapped children.

D. Finding out implications for school building.

E. Joining pre-school and primary school.

F. Finding new modes of school democracy.

3.2 Concerns of the Education Development Centre

The programme for the very first working year of the EDC contained the following objectives (cf. Teschner - op. cit. p. 347):

- testing possibilities of training all pupils in working techniques and working attitudes ("education in study") in a gradually evolving vertical programme;
- discovering at admission and during the school career ancillary means of ensuring that as many pupils as possible can remain and be taught in ordinary classes (as distinct from arrangements on the lines of special classes);
- by means of experiments in co-operation and team teaching and by varying the size of the learning group and the work patterns of different levels and in different subjects:
  - finding and promoting ways of combining individualized teaching and social education;
  - developing different forms of self-instruction for pupils - both formative and creative;
  - discovering ways of rationalizing work patterns in schools, inter alia by employing various kinds of personnel with no specifically pedagogical training to assist teachers;
- seeking ways of establishing a central bank for teaching material in the broadest sense of the term, and school premises in which instruction on the lines indicated above can be given;
- testing new subject matter, methods and material.

Thus, from the very beginning, team work of teachers, co-operation transcending limitations of class units, subjects and levels was emphasized. Also, very often the production of teaching material originated in and/or presupposed the work of teacher teams. Also the realization of the first objective cited above, the evolution of a vertical programme for what may be called "education in study", presupposed the co-operation of teachers of different school levels and teaching subjects.

Gradually, some of the originally initiated projects have been completed, whereas others have been started. However, the work of the EDC has followed a continuous line, so that very often one project has followed on the work of another, though approaching the problem from a different angle or with different methods.

This was true also when, for administrative reasons, in 1971 the EDC gave way to the MED. The new organization of MED also entails a closer co-operation between the development activities of the Malmö City Board of Education and the research and development activities of the Department of Educational Research of the School of Education. The present programme of the MED contains seven different problem areas, of which those of "The Flexible Use of Resources" and "Pastoral Care of Pupils" are of special relevance to the change in teaching patterns. In general, a major objective of the work of MED is to contribute to the growth, in school personnel, in pupils and parents, of preparedness for change - a change which will all the time demand renewal but also entails a critical examination of the school and its role in the society of today and tomorrow.

Such development and research projects as VGL, LISS, LINS, School Environment as will be described below, all have their origin in experiments in co-operation which started, for the grundskola, in 1964 and for the gymnasieskola even earlier. Team teaching and cross-disciplinary co-operation was started within the curricular frame indicated by the Lgr 62 and in school buildings of a traditional type. Today, these modes of work find special possibilities of expression in open plan schools. However, MED has not lost interest in the development of co-operation and team teaching in traditional school buildings. In some of these, certain modifications in the building have contributed to creating better conditions for team teaching and cross-disciplinary co-operation of teachers.

3.3 Research and Development Programme of the Department of Educational Research

Research projects carried out at the Department of Educational and Psychological Research of the Malmö School of Education are financed by the National Board of Education, which also decides which proposed research projects submitted by the local department will be financed through national funds.

The major part of the projects are concerned with an analysis of general problems within Swedish school development and could have been based at any other educational research institute in Sweden, although possibly the fact that this analysis has been carried out in a region with a very intense educational discussion and experimentation has had some influence. However, another group of projects relates directly to development work carried out in Malmö and its neighbourhood in close co-operation with local and regional education authorities. As has been stressed above, the main aim of this development work has been, and is, to find practicable ways of implementing the current school reform. Certainly, these projects, too, might have been carried out in other places. However, the fact that Malmö has gone through an unusually long period of development activities in the field of educational organization, teaching material, school building and other factors which may influence patterns of teacher tasks, has made it possible to study the related problems more thoroughly than in most places in Sweden.

The research work in the Department of Educational and Psychological Research is grouped in four different sections:

1. Subject-matter oriented research
2. Teacher oriented research
3. Pupil oriented research
4. Organizational and environment oriented research.

In each of these four sections the projects of specific relevance for the teacher's tasks are more thoroughly presented here.

Of the subject-matter oriented projects the IMU project (Individualized mathematics teaching) has been chosen as an example of the development of a method-material system primarily aimed at individualizing the studies of the pupils but also having wide implications for the organization and work of the teachers.

Of the teacher oriented projects the PIL project (Pedagogics in teacher training) is of special interest because of analysis made of teachers' functions. These analyses are referred to in chapter IV in this paper.

Of the pupil oriented projects, Student democracy - co-planning at different levels of the school has been chosen because of the stress put on this in the new curricula both in Sweden and in other countries. This project is mainly of an analytical character and the activities studied are not very different from what has been going on in other parts of Sweden.

The organizational environmental oriented projects are for different reasons given most attention here. These projects have all been developed in close co-operation with the municipal development presented above. The activities include attempts to change the pattern of work of the teachers to a very high degree and what is going on is in many respects different from the situation in most other schools in Sweden. They are also internationally known. The projects we deal with here are:

The FOL-project (Co-operation between pre-school and primary school)

The VGT-project (Team teaching and flexible grouping)

There is also a group of three projects, called the School environment projects, studying the interplay between new types of building and study material and the inner work of the school. These three are:

The LISS-project (Curriculum development in open plan schools)

The LINS-project (Study material in new schools)

The LOFS-project (Building for school and leisure time)

In the following section, the objectives, procedures and results of projects within each of the six problem areas mentioned above will be outlined, all necessarily in skeleton form. For each problem area or group of projects an attempt will be made to point out the main consequences for the patterns of teacher tasks.

These lists of consequences are derived from two main sources. Primarily, they draw on published evaluative reports on the various development and research projects. Secondly, the findings summarized in reports are supplemented through experience gained by people who have been personally engaged in the work. Then, in chapter IV, general consequences will be drawn as to the emerging patterns of teacher tasks. The argument in that chapter will be based on the more specific consequences drawn from the various projects and outlined in chapter III.

A. The Emergence of a new Pedagogical organization

A.1. Co-operation

On the junior and middle levels of the compulsory school, team-teaching and flexible teaching have been part of the development work since 1964, but, for natural reasons, have not gained much ground until the building of the new schools started.

On the senior level the need for co-operation between teachers was perhaps greatest in the curriculum valid in 1964 (Lgr 62). There existed comparatively modest experiences from a compulsory 9-year school with a subject-teacher system. Many teachers had experience from the parallel school system, i.e. primary school (folkskola) and junior secondary school (realskola), where classes were homogeneous. Others were recently trained. Certified teachers from the lower levels had often received further training to be qualified for teaching at the senior level.

On the senior level the subjects were numerous and the offer of options extensive, which led to a very complex organization and a very split school-day for the pupils. Thus, the need for co-operation was great. This also led to an increasing interest among the schools in participating in the development work concerning co-operation problems on the senior level. Four main phases are distinguishable:

a) Co-operation experiments 1964-66.
b) Pedagogical-organizational experiments (PEDO) 1967-69.
c) Curriculum development (LUMO) 1970-73.
d) Flexible use of personnel resources at school (PRIS)

Co-operation experiments have also been carried out on the secondary level, which however is treated separately.

a) Co-operation experiments 1964-66

At three schools the work during the first year was sufficient to provide material for a general report. The teachers of social orientation subjects at one school co-operated during a period in the study project "EFTA and EEC". At another school the

natural sciences teachers together based a study project on the theme "The Car", and at a third the teachers of social orientation subjects concentrated their collaboration in the two fields of interest "China" and "Neighbourhood". These three schools had several problems in common: teaching materials, time-tables and premises. The co-operation within the new teacher-teams was built up around these questions. Soon they became aware of the defects of the existing teaching materials when it came to co-ordination of subjects and activity-pedagogy. Thus, the teachers had to produce their own materials both to complement existing ones, to co-ordinate them and to make them more fit for independent pupil work. Special allowances also enabled purchases of complementary books, newspapers, slides, maps etc.

From the very beginning it was clear that co-operation in teacher-teams meant that many problems had to be solved. The increased work that co-operation entailed was compensated, however, by the enthusiasm seemingly shown by the pupils. Whether the pupils' interest was due to the change they had experienced or to the active way of working could not of course be determined. A great part of the positive pupil attitudes was regarded by the teachers as an effect of the actual co-ordination work which gave the teaching-matter a better structure. It has probably also meant a great deal to the pupils to have seen the teachers co-operate.

Since words like co-operation, coordination and integration are used in varying senses we agreed on the following definitions:

Co-operation - Co-operation is an overlapping term comprising all forms of activities with the purpose of utilizing functional connections between subjects.

Parallel-teaching - At planning conferences or the like the teachers can take a further step towards coordination by so-called parallel teaching. The planning is done so that similar teaching-matter can be treated simultaneously in different subjects.

Liaison of teaching-matter - Parallel teaching can be used for liaison of teaching-matter, i.e. the teaching is organized in such a way as to enable teachers and pupils to make an active use of similarities and connections between subjects.

Integration - The term integration, in our opinion, should be reserved for a form of co-operation so far reaching that the dividing-lines between subjects are completely erased.

Study project - Study project means a functional unit within a subject or a unit created through co-operation between several subjects. Examples of study projects: Africa, the Soviet Union, the Neighbourhood.

b) Pedagogical-Organizational experiments (PEDO) 1967-69

Gradually a new model was developed for work at the senior level. This model was entitled PEDO which means Pedagogical-Organizational experiments and which implied the

testing of an organization with working units of two to three classes (60-90 pupils), continuous working periods and teacher-teams. This model would form a solid framework for further development of collaboration and would also give more favourable conditions for flexibility and, as a consequence, more individualized instruction. The National Board of Education wanted to test the model both in Malmö with prior experience, and in Skellefteå and some other municipalities, in order to get additional experience as a basis for a revision of the curriculum. The teaching-matter was structured in study projects, which could be either subject-related (from only one subject) or combined (from several subjects within either the natural or the social sciences sector) or what was called overlapping (from both sectors above). Different models were drawn for the building up of these study projects. One aim was to give more room for the pupils' own activities, individually or in groups. This was to be attained by making the basic course, common for all, as small as possible. Room was thus given for a wider special course, enabling the pupils to choose their own tasks. The teachers worked in teams, planning the work as much as possible in co-operation with pupils and to a certain extent with parents. Co-operation with teachers' assistants was further developed. The experiments with team-teaching and study projects under the heading PEDO extended over the period 1967-69. The revised curriculum (Lgr 69) was then put into use, starting in grade 7. Its directives correspond very well to the method of work practised at the experimental schools. Thus, it can be said that the PEDO work has greatly influenced the new curriculum.

c) PEDO becomes LUMO

The schools taking part in PEDO wanted to follow up their work more systematically according to the new curriculum. The term PEDO was replaced by LUMO, meaning Curriculum Development, within the Malmö region for orientation subjects. During the first year of the new curriculum an inventory was made of problem areas important for continued experimental work. A working group for LUMO was started with representatives of the participating schools. The main task of the group was to establish contacts between the schools and to provide them with certain services. The main areas so far attended to are:

- Utilization of resource-time
- Teacher-teams and pupil welfare
- Individualization and student participation
- Remedial teacher in the team
- Contacts between levels
- Freely chosen study projects.

The first two aspects will be treated in the following section:

- Utilization of resource-time: One of the biggest innovations in Lgr 69 was the introduction of resource-time and resource-hours. In Malmö, teachers' assistants were employed and some teaching materials were bought for the 20% of the resource-time

that was the stipulated limit for that particular purpose. There was also the possibility of putting some of the resource-time into a "time-bank" to be used for guest-lecturers, extra work due to study-visits etc. The greatest part of the resource-time in the orientation subject area, amounting to three hours per week and class, must however be distributed among the teachers. At some schools this distribution was made for a week at a time which meant that some teachers' attendance varied considerably from one week to another.

- The teacher-team as a basis for the pupil welfare work: Adjoining the Malmö School of Education there is a special school-unit for experimental and demonstration activities. At one of these schools the teacher-team in social orientation subjects has been given a special function as to pupil welfare during the last few years. The teacher-team meets every fortnight with experts on pupil welfare. At these conferences they decide upon which measures to take on the basis of observations made by members of the teacher-team.

The following advantages of the project have been reported:

- The gap between teachers and experts on pupil welfare has diminished considerably. A seemingly hard-to-penetrate bureaucratic apparatus has quickly been broken down. The interval between decision and action has shortened.
- The welfare work has become an integral part of education.
- The resource-hours have been directed to where they are most needed.
- The exchange of information has in a positive way influenced attitudes towards problem pupils and has increased the willingness to alter the situation of the pupils.
- The fixed teacher-team conference dealing with pupil welfare constitutes a natural meeting-point for welfare officers, psychologists, parents and teachers.

d) Flexible use of personnel resources at school (PRIC)

In 1971 a Government Commission was appointed to investigate the internal school work. The Commission is studying the effects of greater liberty for the individual school in administering its teacher resources. In addition to the so-called resource hours, the school also has a freer use of remedial teaching than other schools. Two of Malmö's former PRDO-schools are taking part in this project. The main purpose of the investigation is to show up the administrative-technical aspect of the school resources. In Malmö it is considered important also to evaluate attitudes and educational effects. Such an evaluation was started in 1972/73. The teacher resources, which are fixed by the curriculum and by the Education Act for certain purposes, are now freely, but differently, utilized at the two schools. One of the schools has distributed all available teacher resources evenly in order to form basic groups of some 18 pupils

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instead of classes of 30. The system is fixed for an entire school year and does not allow flexibility. However, by uniting basic groups, flexible pupil-groupings can be obtained. The other school works with a "time-bank" to be distributed successively. Both schools have so far given almost entirely positive reports on the effects.

e) The upper secondary school

On the upper secondary level team-teaching has been used in different lines over the last 10 years. The longest experience is to be found at one school, where co-operation among teachers in the social studies subjects and in Swedish was organized even before a development block was established.

In the school year 1966/67 team-teaching had gone so far as to venture upon a reorganization of the teachers' work, thus releasing funds for the employment of an assistant and typist. Three classes with 90 pupils in all were looked upon as a teaching unit and the work was planned and carried out exclusively by teacher-teams in nine different subjects. These nine subjects were so concentrated in the time-table that all the lessons formed a continuous period either in the morning or in the afternoon. Thus, opportunities were given for work in flexible groupings and for varying teaching methods. The preparatory work of both pupils and teachers was concentrated in one session a week for each subject. The teachers reported after the first year that the method had great advantages but also meant quite a revolution of teaching and learning habits. Both teachers and pupils therefore needed time for adjustment. There were difficulties, above all in mathematics and modern languages. This was probably due to the fact that those subjects had never been taught at the school in team-teaching and flexible groupings. There was a lack of adequate teaching materials. All the participating teachers expressed a positive opinion of team-teaching but emphasized that many problems remained to be solved and that much time-consuming work was needed before a teacher-team could function satisfactorily. Gradually the work in the small group (4-8 pupils) would play an increasingly important part. Both teachers and pupils have criticized the feeling of anonymity that the VGL-method easily causes. The form master has reported great difficulties in keeping continuous contact with all the pupils in the form, as the class often works split up in smaller groups or together with other classes. The teachers' assistant has taken over a great deal of the checking and registration work, which is a part of pupil welfare work.

There have been experiments at other schools too. At one school many pupils have criticized the method because the results of a great deal of group work or individual tasks have not been reported in front of the large group, for want of time. Some pupils feel lost because the teachers have not had enough time to tutor all the groups sufficiently. The feeling of anonymity has been considerable.

At one upper secondary school with practical vocational lines much experience of the VGT-method has been gained during the existence of the development centre. One teacher team in motor technology has collaborated in lesson-planning and in pupil welfare. By flexible groupings in the subject of Swedish, another team has integrated Swedish with vocational practice and directed the work on the basis of the pupils' practical training.

A third team, in the field of administrative Automatic Data Processing, has for many years worked with higher teacher density in essential parts of the training and work with individual pupils or small groups outside the time-table. This school has reported mostly positive experiences from the VGT-organization.

A.2. The VGT-project (Flexible grouping and team teaching): The Research

Experiments to find new patterns for co-operation between teachers and a new structure in the content of the studies have played an important part in the work of the Education Development Centre in Malmö during the sixties. At the same time, new forms of grouping the pupils to fulfil different aims in the school work have been developed. Towards the end of the decade it became evident that the problems of team teaching and related new ways of organizing the work in the school would come to play an important part in the curricula for all schools in Sweden, and consequently the National Board of Education felt that more thorough studies were needed. After a year of planning, money was given to the School of Education in 1969/70 for a project on VGT that was planned to continue until 1973.

The first two years of the project were mainly devoted to a broad general study of attitudes among teachers and pupils in two experimental schools at the upper secondary level and in a couple of schools at the upper level of the grundskola, with different aspects of a flexible organization of the school work inside the so-called PALO-project. From 1971 to 1973, a comparative study of the application of the new curriculum for the grundskola, Lgr 69, was made in 8 schools with different organization and building design. These schools were ranged in a sequence from organizational stability to flexibility. Three schools which had not earlier taken part in organizational-educational experiments were placed at the extremity of the stability side, three PALO-schools which had taken part in the experiments preparing Lgr 69 became a middle group, and two open plan schools specially designed to facilitate a flexible organization formed the extreme of the flexible side.

The organization and schoolwork in the different schools was explored through interviews, questionnaires and systematic observations. The development of the pupils in different respects was studied with a comprehensive battery of instruments. This comparative study was only computed in the summer 1973 and the results have not yet been published.

But some data already analysed illustrate the difficulty in realizing a flexible organization in a short time and on a broad scale. The three schools investigated which tried from the beginning to introduce some of the recommendations made in the Lgr 69 – without a prior period of experiment – have all successively gone back to more traditional ways of organizing the studies. This is especially noticeable in the case of attempts to organize integrated units of studies through team-teaching and to concentrate the studies of the pupils in general subjects in two or three hour periods. The study of single subjects for only 40 minutes at a time has again become rather common.

many schools which have had assistants for years have therefore let them disappear, going back to a more traditional way of organizing the teachers' work. This is connected with an increasing surplus of teachers during the past few years. We find here the same ambivalence we have found in experimentation with the IMU system between the wish to professionalize the functions of the teachers at the individual schools and solidarity with the teacher collective as a whole. The tendency now among many teachers is to try to prevent other categories from being involved in the teaching process.

4.3. Specific consequences for teachers' tasks

Co-operation experiments

This title covers subject co-ordination, VGT, PEDO, LUMO and PRIS.

- Regrouping of tasks and responsibilities (co-operation, shared responsibility).
- Strong demands for co-planning: new planning routines - sometimes time-consuming.
- Restructuring of traditional subject divisions, partly in order to make school-work more meaningful and interesting.

  Better use of specialist knowledge: as a consequence, demands for broader subject knowledge (i.e. to avoid dependence on teaching materials).

  Attitudes of "one's own domain" must successively be replaced by collaboration - for practical and ideological reasons.
- New teacher-pupil relations (new groupings, increased possibilities of individualization, school democracy).

  Acceptance of new staff categories at school.
- Acceptance of varying working hours (the time-tables for one year are replaced by periodical or weekly ones).
- New and varying requirements as to teaching materials.

  New demands on the physical school environment (both flexibility and adaptability on the part of fittings, machinery and premises).

  A tendency towards depopulation of the staff room.

Constructing Individualized Teaching Material: The IMU-project

(Individualized mathematics teaching)

The most well known internationally of all Swedish research and development projects is the IMU project. It has produced a method-material system for individualized teaching for the whole upper level of the grundskola

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(classes 7-9). It is probably one of the biggest and most ambitious and also most expensive projects in the world for producing study material.

The projects originated in experiments carried out in a small country district in the south of Sweden around the year 1960. At that time a strong need was felt all over the country for self-instructional individualizing material in mathematics. From the beginning the main reasons for the interest were a shortage of teachers in mathematics and the idea that pupils with different ability and interests should be allowed to study in the same classes without being differentiated in the two normally existing courses. Hermods, a company with a long tradition in making correspondence courses, was engaged in producing such material. The principle of individualization was heavily stressed in the new 1962 curriculum for the 9 year grundskola. The desire of the central school authorities to make education both cheaper and more effective than before contributed to the interest for the new ideas.

When a research project was started at the School of Education in Malmö, in 1964/65, it was therefore designed as a combination of experimentation with new material and methods of study and different organizational models for using the staff and grouping the pupils. Chapter II contains a description of how the material has been used in a "three class" organization with two teachers and a teacher assistant. The development of material and experiments with different organizational models for the use of teachers and assistants was followed up with an extensive study of the effects during the years 1968-71. About 12,000 pupils, 400 teachers and assistants in 81 different schools all over the country took part in this investigation.

Several different models for the organization of the use of the staff and the grouping of the pupils have been investigated. About 60% of the classes have been organized in "large groups" of two or three classes working together. The most common model has been the three-class one with 80-90 pupils, two teachers and a teacher assistant or two and a half teachers and an assistant, which is described above. The word "large groups" has sometimes been misunderstood. These "large groups" have been located in different ways. Only very seldom have they been in one large room. Generally they have been placed in different classrooms with open doors or some other form of communication for the staff.

The "one class model" with one teacher working alone in one class without an assistant became more usual towards the end of the experimentation period.

The following results from the study of effects are the most noteworthy. The attitudes of both teachers and pupils using the material have been rather positive compared with those using other material. Results in schools using different organizational modes have on the whole been the same. No clear tendency could be found. Those finding the material most difficult to work with have been the pupils with low achievement levels. The teacher assistants have on the whole been more positive towards the use of the IMU-material than the teachers. The assistants declared that they found both their administrative tasks and their contact with the teachers and pupils stimulating.

Now when the experimentation period is over and the results of the research studies are on the whole so positive that the system could be spread all over the country, the shortage of teachers no longer exists and the general attitude towards individualization has also been changed in favour of methods and organization which are considered as more socially developing.

The IMU system has been very important for the discussion in Sweden about teaching methods and organization. It has given a deeper understanding of the need for balance between individual work, group work and collective work. It has indicated new possibilities of using the space available, grouping the pupils and organizing the work of the staff.

B.2. Specific Consequences for Teacher Tasks

The consequences for teachers' tasks are summarized under three main headings, one general and two relating to different organizational models.

a) Changes independent of organization and of extent of teacher assistance

- Increased individual pupil-contacts
- More and different forms of planning and organization
- Increased restriction to methodological directions
- Less contact with the whole class
- Less speech (oral presentation of facts)
- Fewer routine exercises.

b) VGT-organization with teachers' assistant

- More collaboration with colleagues and other personnel
- More time for individual tutoring
- Increased possibilities of teaching in small groups
- Less routine work.

c) A class organization without teachers' assistant

- More routine work
- More diagnostic and evaluating activities.

C. Integrating handicapped children: Remedial teaching in clinics instead of special classes

C.1. The Research and Development work

In Sweden most children have in the past been given a short school maturity test some months before they have started their first school year. On the basis of these school maturity tests, some children with low points have been separated in small "school maturity classes" where they have had to stay for one, two or three years. Research on the school maturity tests has shown that it is very difficult on the basis of the tests to make sound judgements about separating pupils from their comrades in this way for a long time. The idea that it is desirable for social reasons to integrate different sorts of handicapped children with normal children has also become increasingly widespread in Sweden during the sixties.

In 1965 experiments with so-called clinics for individual help of pupils in the lower level of the grundskola were started in Malmö on a limited scale inside the Educational Development Centre. Pupils who needed help of some kind in reading, writing or mathematics were allowed to leave their classes to visit a clinic for a few hours and stay the rest of the time in the ordinary class. A study was made of three groups of pupils comparing different kinds of results. One group consisted of children in school maturity classes, the second of children who were given help in clinics, and the third of children with the same marks in the school maturity test but placed in normal classes without special help outside the class.

Briefly the results of the investigation showed that the cognitive skills were favoured by visits to clinics, but there was a tendency for the children in the small school maturity classes to show better social adjustment and to be less anxious than comparable pupils in the other two groups. The results from the Malmö investigations played an important role, when central directives for co-ordinated remedial teaching were drawn up in the new Curriculum Lgr 69. They recommended clinic teaching and companion teaching, with a remedial teacher working directly in the classes, as the main forms of remedial teaching, at the expense of remedial classes, which were assumed to become less common. The design of the open plan schools was also affected to some extent by the desire to facilitate direct co-operation between remedial teachers and ordinary teachers in the teaching.

C.2. Specific consequences for Teacher Tasks

- Distribution of responsibilities and tasks is developed (shared responsibilities)
- Increase of class teachers' planning time
- Increased demand for collaboration with other teachers
- Greater responsibility for pupil welfare (broadened field of responsibility)
- Continuous diagnoses instead of a few definite decisions
- Stronger demands for broader knowledge
- Greater knowledge of teaching-materials
- The special teacher gets more teachers and more pupils to work with; a larger contact area may lead to still more contacts.

D. Implications for School Building: SAMSKAP and the School Environment Projects

D.1. SAMSKAP Schools

During the experiments with team teaching and flexible grouping and integration of subjects, the traditional organization of space and placing of material was often felt to be a restrictive factor. In 1967 a regional organization for school building was

introduced in the Malmö region, at first primarily for economical reasons. A deliberate attempt was made to combine these efforts to build cheaper schools on a bigger scale with a school design which took into consideration the experiences of the experiments conducted inside the Education Development Centre (EDC). Close co-operation was also maintained with corresponding development work in other countries particularly the USA, England, Norway and Denmark. This school building organization recieved the name SAMSKAP (from the Swedish "Samverkan mellan Sydvästskånska Kommuner, arkitekter och pedagoger" - Cooperation between municipalities, architects and educationalists in south west Skåne).

The principles for building the Samskap schools have been summarized as follows:

- Variability, both flexibility in the present-day situation and the possibility of changing the schools at little cost in the future.
- Facilitating integration of different social functions in the local community, such as hobby and spare time activities.
- Facilitating varied pupil activities.
- Facilitating varying pupil grouping.
- Facilitating team work between staff members.
- Facilitating subject co-operation.
- Facilitating varied choice of media by collecting it as close to the study areas as possible.
- Facilitating integration of remedial teaching.

The actual design of the schools on the basis of these principles can be very briefly summarized thus:

The total area is the same as in the traditional schools in Sweden. But the areas available, according to the norms established by the County Board of Education are arranged differently.

The central area is a study hall, in which different kinds of study material are directly available to teachers and pupils, for use either in the study hall or in adjoining smaller rooms.

The study hall space has been gained by putting together what are known as the supplementary areas in the school, that is to say the book rooms and group rooms. A certain amount of space otherwise used for classrooms/subject rooms has also been added which means that classrooms or other smaller rooms are not always available for teaching. The study hall is equipped for active pupil work in groups of different sizes.

A room for giving information to larger groups, as a rule for a whole grade, 90-150 pupils, well soundproofed and well equipped with AV-aids is also provided.

In the upper-level schools the rooms for the different subject groups are as far as possible put together in blocks adjoining the study hall and if possible also the information hall. Thus there will be a Natural Science block, a General Subjects block, a block for esthetic practical subjects and so on. Smaller rooms of between 15-25 m^2 can be used for remedial teaching, discussion in smaller groups, group work and language teaching among other things.

School premises designed as described above greatly change the working situation for both teachers and pupils. Many of the recommendations in the new curriculum for the grundskola concerning team work and varied pupil groupings, which the teachers can only to a limited extent achieve in traditional school buildings, become a necessity in these schools because of the disposition of the space. For this reason, many teachers and parents soon began to distrust what the new development would imply in the form of changed working conditions in the new schools, particularly as such a large number of schools were to be built over a short period. In the lower school levels a slogan was introduced that there ought to be a classroom for each class and that the use of study hall should not be scheduled.

It was obvious at a very early stage that there were many essential questions concerning the effects of this new design of the schools which were unknown factors. Therefore, in 1970 scientific investigations were started. These investigations have developed with grants both from the National Board of Education and the Malmö Board of Education into a group of projects called the School Environment Projects, presented below.

D.2. Curriculum Development in Samskap schools

In 1970 studies specially concentrated upon problems related to work in the new type of open plan schools were constituted as a special project. Curriculum development in Samskap schools (LISS - from the Swedish Läroplansutveckling i Samskapsskolor). It is conducted inside MED in close co-operation with the leaders of the development work in the City Board of Education in Malmö and the School of Education. The research work is of an inter-disciplinary character, and co-operation has been established with the Department of Functional Building Theory at the Lund Institute of Technology.

The main aim of the study of the Samskap schools is to investigate to what degree it is possible in this type of school to fulfil the intentions of the new curriculum Lgr 69. In the spring 1970 a limited exploratory study was made of how teachers and pupils reacted to working in an open plan school, the lower and intermediate levels (grades 1-6) of Värner Rydén-skolan (cf. Klercker, 1970). During the school year 1970-71 a study was made at eight schools, of which six had only lower and intermediate levels, one had all nine grades and one only the upper level (7-9). These studies were still mainly exploratory and concerned with the development of research methods.

These studies showed that the great majority of the members of the staff found that the design of the buildings contributed to more positive co-operation and that the schools on the whole were functioning in a way that was in line with the intentions of the new curriculum. At the same time there were observations that supported the views of teacher and parent representatives outside the schools, that the extreme openness caused problems when it came to taking care of some groups of pupils with special disadvantages in behaviour or ability.

A paper expressing criticism of this kind had been issued by the teacher organizations in Malmö.

One result of the debate following the reports of the LISS-project was that the polarization of attitudes towards the Samskap schools, with different points of view both about how schools should be built and how the work of the schools should be organized, was diminished. The general principles and features of the new room arrangements seem to have been accepted surprisingly quickly by all parties concerned. The debate was then concentrated upon more specific questions concerning how a balance should be reached between partly conflicting demands made on buildings and organization. Economic, educational and social-psychological points of view must be weighed together in a way that makes it difficult to have a definite opinion on the right proportion of closed and open accommodation for different school levels.

During the school year 1972-73, further studies have been started in the lower and intermediate levels to compare the effects on the development of the pupils of different room arrangements, both in cognitive skills and socio-emotional respects. During 1973-74 the results of these studies and the then completed VGT-studies in the upper level should provide new material for the debate on the best arrangement of school premises and its consequences for the pattern of teacher tasks.

Of special interest for the discussion of new patterns of teacher tasks have been systematic observations made in four of the open plan schools. A general result of these observations is that, even in the intermediate level of the grundskola, independent work on the part of the pupils and teacher tasks of a more advisory nature play a larger part than has previously been noted in most investigations in other schools in Sweden.

It is also evident that the activity in the open areas on the whole has been quite different from that in the closed rooms. That has also been the intention in designing the schools with both open and closed areas. In the open areas silent reading and writing have dominated and verbal interplay between teachers and pupils has played a very small role.

D.3. The LINS-project (Teaching aids in new schools)

The main aim of the project LINS (Teaching aids in new schools) is to facilitate rational acquisition and placing of teaching aids. Through this project a model has been developed for analysis of the activities in the schools, specially concentrated upon activities which are stressed in the new curriculum Lgr 69. Descriptions are made of teacher and pupil activities, media and premises. A special administrative model of decision is created on the basis of these analyses.

Some schools in different parts of Sweden have been equipped according to the model as part of the project and the National Board of Education is disseminating the idea of the model through special workshops and summer courses. An analysis of teacher activities inside the LINS-project is used to make teachers more aware of the interplay between organization, content, aims, study material and the space where the work has to be done.

Preliminary reports from schools working with the questionnaires for analysis support the idea that teachers can be trained in this way to change their pattern of work.

D.4. The LOFS-project (Buildings for school and leisure time activities)

Inside the LISS-project the practical-aesthetic subjects and areas for them have been very little observed. Activities in these subjects have instead been studied in the so-called LOFS project.

This project is directed from the Institute of Technology in Lund in co-operation with several institutions, local authorities for schools and leisure time activities, the School of Education in Malmö and the Institute of Sociology of the University of Lund.

The aim of the project is twofold:

a) to influence the writing of programs for building areas for this group of subjects with less division between the subjects than in the past.

b) to investigate thoroughly the problems and advantages of using the same space for both school and leisure activities. This co-operation also includes the use of personnel for both types of activities.

For the time being there is a general tendency in Sweden to try to save investment costs through co-operative use of the same areas. The state commission SIA, (Utredningen om skolans inre arbete - The inner work of the school) also tries to find possibilities of using staff for leisure time activities in the schools during the school day. The intention is to take better care of pupils with little motivation for ordinary school work and let the school have responsibility for the pupils during the whole day. One important task for the project LOFS is to investigate different problems, both practical and psychological, which are connected with including new groups of personnel in the school. The demands upon material and space with this new organization must also be investigated. It is necessary to study what material can be used together, which additional rooms for storage of material are needed and so on.

A big hall, previously a factory hall, is used for the experiment. The Institute of Functional Building Theory has arranged it as a full-scale laboratory using photographs and observations from the roof as instruments for the investigation. Walls can relatively easily be arranged or taken away, and different ways of using the space can be studied. Questionnaires and interviews with the staff and the pupils are also used in the experiment.

It has been clearly demonstrated through the experiment that common use of the same space and the same material and other forms of co-operation between the different staff categories lead to adjustment problems for the teachers, who on the whole have been accustomed to directing the situation in school for themselves. These problems must be thoroughly investigated before such innovations as have been described can be introduced on a big scale. The LOFS-project can only make a small contribution to such an investigation.

D.5. Specific Consequences for Teacher Tasks

The following is an attempt to describe, point by point, the consequences for the teacher's role of such widely separated projects as LISS, LINS and LOFS. Insofar as the projects could and did interact, the list of consequences is adequate.

- Encounter with "another world" (separate institutional forms in and out of school).
- Increased collective use of teaching materials and premises.
- Demands for common planning of:
  - teaching (teamwork, themes, units)
  - use of teaching materials
  - disposition of premises.
- Domain-attitude versus ideological co-operation.
- Acceptance of new staff categories at school.
- Possibilities of systematic and variable choice of media.
- Demands for flexibility in grouping and environment.
- New teacher - pupil relations (the open school gives the pupil an alternative choice).
- Increased participation in and responsibility for pupil welfare.
- Claims on changes of attitudes towards:
  - other subjects
  - other working methods
  - new tasks
  - other grades and levels
  - other individuals.

E. Co-operation between pre-school and primary school: The FOL Project

E.1. The Project

This project has developed from discussions on the problem of individualization in the first grades. The clinic experiment and the discontinuation of school maturity classes have been important factors in these discussions.

The FOL project began as an activity within the Educational Development Group and was constructed in 1970/71 as a research and development project at the Malmö School of Education in co-operation with the social welfare and educational authorities in

Malmö and in Burlöv, a community near Malmö. It has developed into one of the bigger projects in the Malmö region. It gives an interesting example of how close co-operation between research and development work can be organized and fulfilled.

In 1973 the project was adopted as a pilot project in a study on Permanent Education carried out by the Council of Europe.

The activities of the project can be divided into three areas:

- Methods and material experiments.
- Experiments in organizing collaboration.
- Social-psychological experiments.

The aims of the experiments with methods and material are to provide the pre-school with a partly new and more structured content. A catalogue of activities has been constructed within the project with suggestions of activities for social development and environmental orientation (orientation in local studies, biology, physics, chemistry), linguistic development (including puppetry and improvisations); aesthetic development (pictures, form, colour, sound, rhythm, movement), development of mathematical concepts plus suggestions for integrated fields of interest.

The catalogue of activities is intended to function both as an aid for the pre-school teacher in the educational activities of the pre-school, and as a foundation for co-operation between pre-school and primary school. The descriptions should serve as examples of how one can use a logical succession of activities to develop, for example, the grasp of concepts in children.

The aims of the organizational experiments are:

- to develop forms for co-operation between pre-school and primary school (grade 1);
- to provide a foundation for the development of a non-graded school level comprising both pre-school and primary school.

Co-operation between pre-school/school can imply only teacher co-operation. This means that pre-school teachers and primary school teachers co-operate in various ways in order to become acquainted with each other's school levels with regard to content and methods.

Co-operation between pre-school/school can imply teacher co-operation and pupil co-operation. This co-operation means both teacher co-operation as described above and an extended co-operation that also includes the children. Such co-operation provides a greater abundance of opportunities for giving the children activities that are suited to the individual child's level of maturity and development.

On the basis of the results and experience obtained in the experiments, and insofar as a fruitful co-operation has been developed between the school levels, it seems a natural step to extend the co-operation to include the following grades of the lower school level as well.

E.2. Specific Consequences for Teacher Tasks

The FOL project has implications for teachers both at pre-school and at primary level. This is true of all the cases reported as follows:

- Encounter with "another world" (the two school forms represent different institutional systems).
- Teachers can complement each other's knowledge.
- Domain-attitude versus ideological co-operation (different fields of responsibility, differentiated teacher training).
- Broadened responsibility (Responsibility for several functions).
- Demand for increased knowledge.
- Change of attitudes (perhaps the most radical change).

F. Finding New Roads Towards School Democracy

F.1. Development and Research Work

The importance of involving the pupils in the planning and the management of the school work has been increasingly stressed in the new curricula in Sweden both for the grundskola and the gymnasieskola. National and international experience have together contributed to that development. It started in Sweden in the middle of the sixties and the trend was intensified through the student movement at the end of the decade.

The project Student Democracy at the Malmö School of Education has studied different problems in connection with increased influence of the pupils on the school situation. The activities which have been studied in Malmö have on the whole not been different from those in other schools in different parts of Sweden. Attitudes to existing forms of student co-planning, and ideas and wishes concerning the future development expressed by different groups of school leaders, teachers and pupils at different levels in the school have been analysed. The situation in teacher training has also been studied.

Of special interest are results from the lower and middle level of the grundskola although the pupils in the gymnasieskola have shown most ability in playing an active part in the planning of the school work, as was shown in the introductory glimpse.

School leaders, teachers and pupils in schools in Malmö have through questionnaires expressed their views about the actual and ideal balance of responsibility and influence between different groups in school. The opinions have been compared with those of Eiraskolan, Stockholm, which has experimented with very far-reaching pupil influence on the school work. Results from this investigation, complemented with what has also emerged from the other investigations inside the projects, can very briefly be summarized as follows:

- School democracy is a word of honour (honnörsord) which means different things for different individuals and groups. Some teachers and school leaders feel the question of increased student influence to be a threat, which they do not want to express openly.
- All groups state that the influence of the pupils should be increased, but both teachers and school leaders believe that it should be increased at the expense not of their own group but of the other.
- A group usually judges its own influence as being less than other groups consider it to be. The school leaders, for example, consider the influence of the teachers to be greater than the teachers themselves estimate it as being and vice versa.
- All groups find their chances of influencing their work and the situation in the school too restricted because of regulations from authorities outside the school, local and central. The difficulties for both teachers and pupils to exert influence inside a representative system in big schools with many pupils have also been demonstrated.
- Irrespective of the actual influence of the pupils, the questions considered most suited to pupil participation in decision-making are also on the whole the same. The teachers find questions of subject matter and teaching methods less suited and matters of comfort and recreation most suitable for pupil participation.
- As far as the situation in teacher training, which was reformed in Sweden as recently as 1968, is concerned, the project results give the impression that teacher students receive too few opportunities in their training of influencing their own studies and finding models for co-planning in the teaching process, and of developing commitment for democratic ways of organizing the school work.
- Studies in connection with the conflict between the teacher unions and the state authorities leading to strike and lock-out have on the whole shown that the pupils in the higher classes have both the will and the ability to take more responsibility for their own studies than they are usually credited with. At the same time their need of personal contact with the teachers was also clearly demonstrated.

One result from all the investigations in Malmö is that, in spite of the fact that the curricula stress the importance of student co-planning, it is actually of a rather limited scope. The teachers have on the whole a positive attitude to increased participation on the part of the pupils. But among other things a fear of an increased working load is a bar against radical changes in the traditional mode of working.

If real co-planning on a broad scale were to be introduced it would probably change the pattern of teachers' work a great deal.

F.2. Specific Consequences for Teacher Tasks

- New types of planning and preparation.
- More flexibility in planning (to enable adjustment to pupils' wishes).
- More discussions with pupils on:
  - aims (general as well as subject related)
  - alternative solutions.
- More concentration on stimulating the pupils' own initiative.
- More training for all pupils in accepting responsibility for the school work.
- More concentration on problem-centered instruction.
- Increased emphasis on independent work and group activities (changed planning routines for teachers).
- Development and use of new types and forms of teaching materials (allowing alternative courses and methods of study).
- School work evaluated in discussions and group talks with the pupils.

IV. GENERAL CONSEQUENCES FOR THE TEACHER'S FUNCTIONS

4.1 The school as an institution

Both the development work in the Malmö schools and the research work within the Malmö School of Education have shown that it is not fruitful to analyse and discuss the functions or tasks of the teacher "per se". The analyses must be done in relation to the functions of the whole institution, that is, the school. If instructions or regulations are altered or new personnel is involved in the school, the functions of the teacher may be changed totally. The starting point for the analysis must therefore always be the functions of the school. These may then be described in four steps.

Step 1: What are the functions of the school in the community in relation to other community institutions (e.g. social care, leisure time activities, youth care)?

Step 2: What are, more specifically, the different functions of the school system in a country?

Step 3: What are the different functions of different types of schools (e.g. pre-schools, primary schools, secondary schools)?

Step 4: What are the teacher's functions within these different types of schools?

Step 1 is discussed briefly in the background chapter. On the whole there is an effort in Sweden to co-ordinate the work of the school with that of other institutions in the community. Our intention is to analyse and describe steps 2, 3, and 4 taking the experimental and research work in Malmö as the starting point. We begin by describing the functions of the school within the experimental work and then discuss the resources for these tasks.

4.2 The functions of the school within the experimental work

In a previous part of the report there is a description of different experimental and research activities within either the schools of Malmö or the Department of Educational Research at the Malmö School of Education. The activities in Malmö have of course been carried out in close connection with other development work elsewhere in Sweden, also maintaining contact with international trends. Nevertheless, the activities in Malmö have had their own profile within the general Swedish framework, as well as internationally. The six following objectives have been of special importance for the teacher's functions.

a) A more pupil-centered instruction by means of
   - use of individualized learning programs (IMU etc.);
   - the construction of new teaching aids and planning the organization of teaching aids in more effective ways (PEDO, LUMO, LINS);
   - use of flexible grouping (VGT, PEDO and IMU).

b) An emphasis upon the pupil's total personality development with an ambition to promote social development and democratic schooling by means of
   - more opportunities for the pupils to take an active part in the planning of the work (VGT);
   - more contacts between school and society outside school (PEDO)
   - engaging non-educational personnel within the schools (VGT, Open plan schools);
   - developing a more stimulating physical and social school environment (Open schools).

c) Achieving continuity in the individual development by means of
   - co-operation between different levels in the school system (FOL = pre-school, primary school in co-operation etc.);
   - working with groupings of a non-graded type (Open plan schools).

d) Special consideration of pupils with handicaps or special needs by means of
   - attempting to integrate the handicapped children within a natural social setting by means of a special help program (clinic experiments, companion teachers);
   - the construction of special teaching aids for handicapped children (LUMO, teaching aids for slow-learners etc.).

e) The pupil's own active engagement in the planning of the school activities by means of
   - developing school democracy programmes (PEDO, Student Democracy project).

f) A problem-centered instruction by means of
   - co-operation between different subjects within themes and units (PEDO, VGT, Open plan schools).

Of course it has not been possible to realize these positively formulated proposals without creating difficulties for other functions within the school. Conflicts or differences of opinion have arisen. Even these six aims are often in opposition to each other. Difficult adjustments may be necessitated. These problems are discussed in a later part of the report.

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4.3. The resources for the experimental work

In principle the school has three different types of resources:

- Personnel
- Material and physical environment
- Pupils.

The two first types of resources are always mentioned. But it is important to look upon the pupils too as a resource for the school. In Lgr 69 the pupils are dealt with not as objects but as participating subjects within the work in the school.

The responsibility and the functions of the school in the experimental work (as well as in the curriculum development all over Sweden) have moved in the direction of more, widened, deepened and more difficult tasks to fulfil. In such a situation the following steps may be taken:

More resources in the sense of more teachers, more teaching aids, more material, more space and so on is an easy (but expensive) step to take to meet the difficulties. In the Malmö experiments this way of handling the problems is very seldom used. The experiments are carried out within the usual financial framework. The construction of new teaching aids has naturally meant more money, and in some experiments these costs have been fairly high (IMU etc.). There have also been special remunerations for experts, teachers and so on for some planning and reporting duties. However, the real "field activity" in the schools has been carried out within the usual financial framework.

Better resources means, for instance, better teacher training, a better standard of teaching aids etc. In Sweden as a whole a lot of money has been invested in such measures for raising the quality. Therefore, the activities in Malmö have not been focused upon any special measures of this type. Of course the production of new teaching aids, learning programmes etc. also denotes higher quality. The more important step taken in order to obtain higher quality in the schools is the use of the pupil as a resource in the school work. In several of the projects in Malmö (PEDO, VGT, School democracy etc.) the intention has been to give the pupils better opportunities for using their potential in the school activities - for their own development and that of their fellows. This may have an effect on the "power-balance" between teacher and pupil.

New resources means, for instance, new types of personnel in the school staff or the use of new teaching aids. Both in the ordinary school work and within the developmental projects, many new types of personnel have been introduced: school psychologists and other persons for pupil welfare, educational advisors, assistants, clerks and so on. In the experimental work, one of the more interesting things is the use of

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teacher assistants and clerks within a teacher team. Generally speaking this has been done within the ordinary financial framework. One aim has been to decrease the costs in the experiments, or at least keep them level with the costs for the usual school work.

Better organized resources has been the special hallmark for many of the experiments in Malmö. This means that much of the work has had some connection with organizational or planning problems. The project on flexible grouping and team teaching has been focused on organizing the groups of pupils in such a way as to suit the particular learning situation and on using the teacher's professional skills in a more effective way. Within the open plan schools there has been a further development in using the space, the teaching aids and the teachers more effectively by organizing the work for the pupils more flexibly.

4.4. Some principal consequences of the experimental work

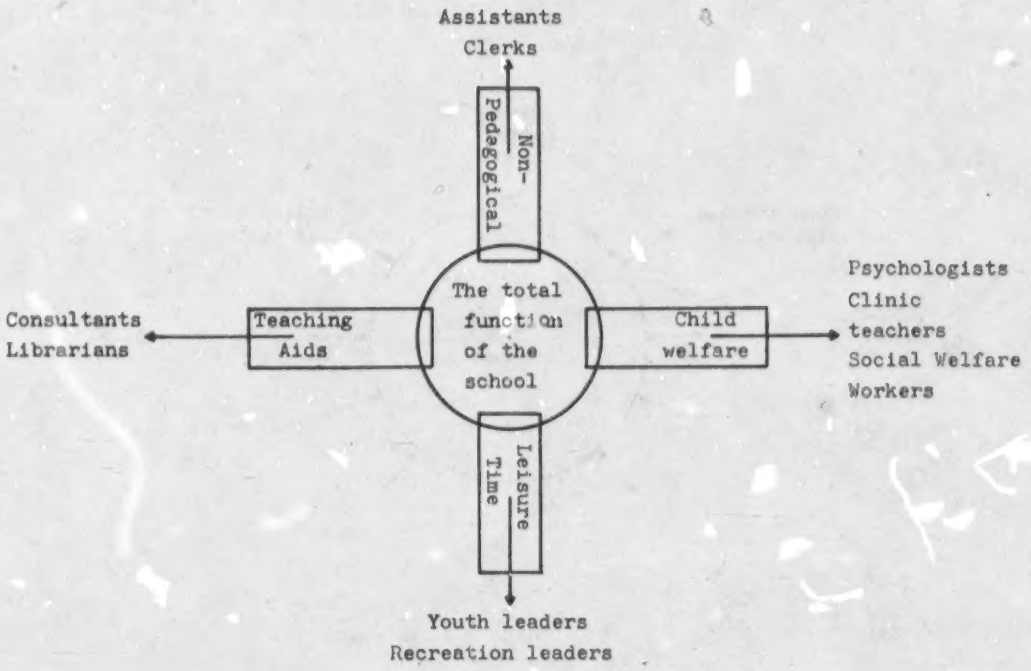
The experimental work has shown that for the teacher's job the developmental work in Malmö has had two main implications. One is a development towards more differentiation. The other development has a connection with this and means more integration.

a) The differentiation process

When the functions of the schools have become more and more complicated, it has not been possible for a single teacher to handle all these duties. In the development work in Malmö we can see how new types of personnel are introduced into the school system to fulfil some of the duties. These personnel are mostly of four types:

- Personnel for pupil welfare functions, which means school psychologists, social welfare workers, clinic teachers.
- Personnel for teaching aids functions, which means educational advisors and teaching aid consultants, school librarians and so on.
- Personnel for mostly non-pedagogical functions such as assistants and clerks.
- Personnel for leisure-time activities linked to the school day, such as youth leaders and recreation leaders.

This process of differentiation can be expressed by the following diagram, where the arrows indicate that some functions are taken over by specialists of some type. Parallel to this there has been an overall development in Sweden towards more responsibility being taken by the school for the pupil's health, welfare and social care as a whole which means, for instance, more personnel within schools working on school luncheons and also the introduction of special school hostesses to help children in their leisure time etc. in the school.

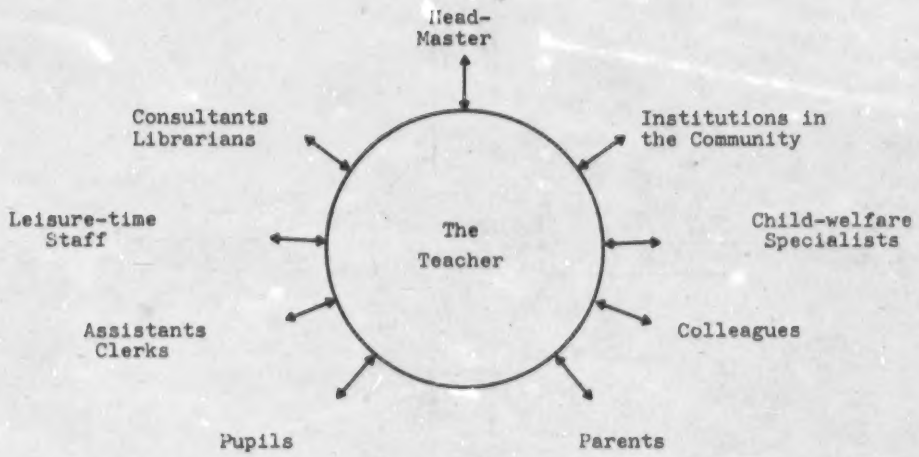


This entire development of differentiation of the school's functions has divided the responsibility for the tasks of the school between many types of personnel within the school (VGT, PEDO, IMU etc.). At the same time this differentiation has not meant that the responsibility for certain functions has been taken away totally from the teachers. This is a difficulty for the teacher. It very often means responsibility but a shared or even differentiated job.

The introduction of new types of personnel into the school staff is not the only process of differentiation. There has also been a differentiation of functions between the teachers as shown for instance within the VGT and the PEDO projects.

b) The integration process

If the school system is to be capable of functioning in an effective way, all the very complex duties and jobs must be co-ordinated in some way or another. The single teacher or team of teachers must be responsible for this co-ordination and integration, for this means a single teacher developing a very large contact area. In the following figure new contacts that are typical for the experimental work in Malmö are shown, together with more conventional contacts between teacher, pupils and parents.



This integration process has many implications for the teacher's role, as will be shown further on. More specifically, we shall also deal with the differentiation of the teacher's functions in some of the following parts of the report.

4.5. New patterns of functions

We have here used the expression "teacher's functions" to describe the main type of tasks connected with the job. By the term "teacher's role" we mean those expectations that different persons (including the teacher himself) have of the teacher's job. A research project (PIL) at the Malmö School of Education has shown that different groups of people (such as head-masters, consultants, teacher trainers) put varying degrees of intensity into different expectations of the teachers. The research project has also shown that regardless of what emphasis is placed upon different functions, it is possible to arrive at the same structure of the teaching tasks. In this report we will take this structure as the starting point for our analyses.

The teacher has two types of functions, which are of course closely connected. One type we will call primary functions, which means tasks that are more directly connected with the work together with the pupils or, in other words, those functions for which the school is intended. Another type is secondary functions, which means teacher tasks that are necessary for the teacher and the school to fulfil their primary functions.

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a) Primary functions

One primary function for the teacher is to fulfil tasks connected with the pupil's cognitive development. In the experimental and research work this has been modelled:

- partly as more individualized and pupil-centered instruction (IMU etc.),
- partly as an emphasis on continuous individual development (FOL etc.),
- partly as more problem-centered instruction (PEDO etc.).

This has many implications and it is possible to give only a few small hints. It involves:

- motivating the individual pupil, which necessitates knowledge of children's needs,
- introducing relevant knowledge, which necessitates a good knowledge in the various subjects,
- individualizing the instruction, which necessitates a good knowledge of methods for diagnosis,
- creating a good learning situation, which necessitates good planning and management.

In the developmental work we find special emphasis on a continuous diagnosis (clinic experiments, FOL, IMU etc.) and not, as before, one single diagnosis, often with dramatic effects for the children. In the experiments with team-teaching the pupil has experienced a sense of anonymity. To some extent this has been compensated by more teachers knowing the child and by the development of special registration systems. (In some VGT projects report cards are used where the teachers are continuously recording the pupil's achievement etc.).

Another primary function deals with tasks related to the pupil's social and emotional development. In a research study (PIL) this has been found to be the function with the highest evaluation. In the experiments a great deal of emphasis has been laid upon these tasks. The foundation for these tasks is:

- wide experience of diagnosing single pupils and - especially - groups of pupils,
- the ability to handle group situations,
- the ability to work together with children.

These last aspects have special implications in the student democracy projects, PEDO and VGT projects. In some aspects the teacher's field of responsibility is narrowed. The pupils take over responsibility from the teachers, but the teacher himself takes over some responsibility from the headmaster.

A third primary function, but of a less pupil centered type, concerns the teachers' tasks in connection with teaching aids and teaching media. Some of the research projects have developed a more or less programmed material. Here the teacher's tasks are greatly minimized (IMU, UMT etc.). Here we have two interesting findings. The teachers express a need for self-instructional and near self-instructional teaching aids. When they get

them, many teachers hesitate to use them. They find it unsuitable for their instructional methods or for the needs of their pupils. On the other hand many teachers have found out that teaching aids which are easy to handle by the pupils give more time for the teacher to work in close personal contact with small groups of children and with children who need special help.

b) Secondary functions

It is not possible to make a very clear distinction between primary and secondary functions. For instance much planning work must be done outside the learning situation, but still we call it a primary function. The secondary functions of the school are those tasks which are necessary for the school to fulfil its goals. Many of these tasks are ordinarily located outside the teacher's functions, for instance the administrative work carried out by the head-master or the service work which the caretaker has to handle.

In the experimental work in Malmö, two secondary functions for the teacher, which we will call (a) the co-operative function and (b) the developmental function, have come to the fore.

The co-operative or communication function consists of the tasks connected with the teacher's contacts with colleagues, specialists, head-masters and so on, according to the scheme given above. There is an interesting contradiction in this development. In order to help the teacher to fulfil the many complex tasks which he has in the school today, many different kinds of experts and service personnel are introduced into the staff. However, the teacher or the teachers must be responsible for the integration of the tasks of these new members of the staff. This has at least two consequences for the teacher: (a) he must spend a lot of time in communication work: formal or informal conferences, visiting experts, telephone calls etc.; (b) he must acquire a fairly good knowledge of those matters which he has to discuss with experts, e.g. training programs for handicapped children, psychological and social matters etc.

It soon becomes apparent that such communication work functions best if the work is done as team-work, where the responsibilities are shared between the members of the team. If such team-planning is to be flexible enough, much of the administrative work (e.g. scheduling, planning of working spaces etc.), which was formerly done by some administrative expert in the school, must now to some extent be carried out within the team. Summing up, the following consequences can be seen from the experimental work in Malmö with regard to the teacher's co-operative functions:

1) Relatively more of the teacher's tasks are transformed from primary into secondary functions (planning, administration, communication). On the other hand some secondary functions of a clerical type are cancelled out.
2) The teacher must acquire knowledge of a great variety of special subjects in order to communicate with specialists.
3) The teacher must be able to use his own special knowledge and interests within a team with shared responsibility.

By the teacher's developmental functions we mean those tasks which involve activities for the teacher's own personal and vocational development, as well as activities for the development of the school. It is evident that this development aspect comes into focus in an experimental setting such as Malmö. On the one hand this means that the teacher has to read a lot, has to take courses and so on in order to be better fitted for the experimental tasks. On the other hand it means that the teacher has to take part in many planning and construction activities, which in a non-experimental setting are conducted outside the individual school. Typical examples of this type are curriculum planning in a broader sense and the construction of teaching aids. Very often the teacher also has to take part in evaluation tasks within the experiment, and in information and documentation work related to the experiments. This last function very often not only gives new work, it usually also gives more work. This has special consequences for the innovation process, which we will discuss later.

4.6. New ways of fulfilling the functions

We have discussed above the consequences of the development work for the teacher's patterns of functioning. There we have focused upon what the teacher has to do in these experiments. Another prominent aspect is how the teacher fulfils these new patterns. Here we can see at least two consequences: (a) the decision-making process, (b) the teacher's taking of responsibility. These two aspects are closely related to each other.

a) The decision-making process

In the traditional configuration "one teacher - one class" the teacher makes all the decisions and takes the responsibility for his actions. In the experiments in Malmö the decision-making process is much more complicated (VGT, PEDO, FOL, Open plan schools). In a research project (PIL) it has been possible to figure out several different possibilities:

- The teacher himself decides and carries out the tasks.
- The teacher himself decides and some other person carries out the tasks.
- A team decides and the teacher carries out the tasks.
- A team decides and some other person carries out the tasks.

In the experimental work there is a clear transition from activities of type 1 to activities 2, 3 and 4. We have found that usually the quality of the decision-making process has been raised by this transition in the sense that it is more pupil-centered, more helpful and involves less punishment.

b) Taking responsibility

In nearly all the experimental work in Malmö the degree of the teacher's responsibility has been altered. This process has been very different in the different projects.

- There has been a strong tendency for the teacher to acquire more responsibility, either by taking over some of the responsibility from the headmaster, such as planning, scheduling and co-ordinating (PEDO, VGT etc.), or by being given responsibility for a much wider area, such as following up individual learning programs, making continuous evaluation etc. (IMU, Clinic experiments, FOL, etc.).
- There has also been a movement towards shared responsibility together with colleagues or specialists.
- Thirdly, in many projects there has been a development towards responsibility for a larger group of pupils (VGT, Open plan schools).
- As has been shown, very often teachers also have to delegate responsibility to pupils or share responsibility with pupils (School democracy, VGT, etc.).

Taken together this means much more of a management role within the school. For many teachers this has been a positive trend, for others not. Perhaps it has created a stronger polarization within the school between those who take responsibility for such planning, administration and co-ordinating activities and those who do not.

In those projects which have been centered upon method-material programs, there has been a feeling of having too low a level of responsibility for educational work and more responsibility for administrative routine work. When these method-material projects have been combined with flexible grouping and team-teaching this feeling of having too much routine work has mostly been cancelled out, because it has been possible to use teacher assistants and clerical aids (cf. IMU).

4.7. New attitudes and new values

In the beginning, projects concerning co-operation between school levels, team teaching, open plan schools etc. very often add to the teacher's tasks and make them more difficult, which in some cases gives rise to opposition to the innovation process. A positive attitude to the innovation is necessary if it is to turn out a success. In many instances it is difficult for the teachers to handle the new methods etc. and this means much more in-service training. In all experimental work there are at least three areas to cover.

- The teacher needs more knowledge.
- The teacher needs new skills.
- The teacher needs changed attitudes.

In the previous parts of this paper we have discussed what knowledge and which new skills the developmental work has required in the teacher. Acquiring more knowledge is a summative process, which means adding new knowledge to old. From a psychological

point of view this is the easiest process. Acquiring new skills is in many instances a formative process, which may require breaking down old habits and building up new ones. In many instances this is a difficult process and one can expect opposition from the teacher.

The most difficult process - and the most important - is the building up of changed attitudes. In many cases it is a process of transfer from one value system to another. As it is quite clear that the success of a certain method etc. is dependent on the teacher's attitudes, this may be seen as the key problem and we will return to it later in the paper.

In the experimental work, which are the "changed attitudes"? It may be convenient to discuss this within three main areas:

- attitudes towards persons, such as pupils, colleagues and head-masters;
- attitudes towards working methods, and
- attitudes towards things outside the conventional area, such as other subjects in the school and other levels.

Very often the individual teacher who enters the experimental work does not have these new attitudes or is not aware of them when entering the job.

a) Attitudes to pupils and adults

In the experimental setting we have found an attitude focused upon the individual child. The class as such is seldom the target of the teacher's interests. In clinic experiments, in team teaching, IMU, the FOL project and so on, the curriculum is organized around the individual child, his needs and capacities. In other Swedish research work it has been found that there is a rather small group that "steers" the way in which the teacher organizes the work for the class as a whole.

Another attitude toward the pupils is one that recognizes the importance of listening to the pupils and giving them responsibility. This means an attitude toward the pupil as an important resource person and a democratic attitude on the part of the teacher. A third attitude in relation to the pupil is that not only cognitive aspects are important but also the child's emotional and social development. This has had a strong consequence in the evaluation of the child from quite another point of view than marks and capacities in single school subjects.

A rather narrow view is often found among teachers: my subject, my class, my classroom, my teaching-aids and so on. Working together with others has taught the teacher to listen more to others, not only teacher colleagues but also to many other adults within and outside the school. A more broad-minded attitude to other people's ideas and views is a natural consequence of this. Attitudes towards co-operation with other adults have been found extremely positive in the evaluation of team teaching in Malmö.

b) Attitudes to working methods

Much of the experimental work has meant working with new methods. This is quite natural. The most significant point in this connection is that the experimental work in the schools has in most cases been carried out in very close co-operation with research workers. Discussions between educational scientists and teachers are a common part of the developmental activities. This gives the teacher a wider and more objective attitude to different working methods and different organizational solutions.

c) Attitudes to other subjects and other levels

It is very common for teachers - especially in secondary schools - to have very little insight into subjects other than their own teaching subject. Working in teams (e.g. PEDO, VGT) means that the teacher gains some insight into other subjects and other problems. This gives him a wider perspective and the opportunity of putting his own subject in a larger reference system.

The most dramatic effect upon teachers' attitudes comes perhaps from those projects which work with problems connected with the child's transition from one school level to another, for instance the FOL project. This has meant opening a new world to the teachers, a world with different problems and different systems of values.

4.8. Administrative and organizational problems

Educational change may follow several types of procedures. One is the individual change, which takes place for instance through in-service training. New teaching methods, new materials, new goals and values may be introduced in this way. Another type of measure involves organizational change, where the functions of the school are more or less controlled by new organizational and administrative rules. A third type of measure is the changing of the physical conditions in such a way that it gives different premises for the work. The last type of change is discussed in a previous section in relation to open plan schools and we shall not enter into these discussions again.

As organizational change has been so predominant in the experimental work in Malmö we will extend the discussion a little. There are of course many problems connected with the development of team teaching, student-democracy projects etc. Three of them deserve further analysis.

a) Development of an informal planning and decision-making structure in conflict with the formal decision structure

The decision structure in the formal system is hierarchically built up not only on a national and local basis but also within the individual school with the head-master, director of studies, senior teachers, teachers, pupils. In the experimental work this has been broken down and replaced by functional teaching teams, where the team and not an individual person is responsible for the work. The legal structure is then built up hierarchically, and the real structure functionally. This means a situation where the two structures very often come into conflict. There are for instance cases where the real responsibility for the working situation in a school is in the hands of the teams, but the legal responsibility rests with the head-master, director of studies etc.

b) Conflicting or competing activities from different teams

If the planning is the responsibility of the different teams, many situations arise in which it is necessary to co-ordinate them. The more responsibilities and the more flexible the opportunities that are left to the teams, the more difficulties arise in this co-ordination. This may place a heavy load on team leaders or single members of the teams. In order to avoid this it is important for the school leaders to take a very active part in co-ordinating the teams.

c) Administrative control and continuous planning

In several schools it has been felt necessary to avoid conflicts in the planning system by a more centralized scheduling of, for instance, rooms, groupings etc. The teachers very often feel that this is a factor of rigidity within a school system that is intended to be flexible. Some schools therefore try to avoid too much long-term planning and instead use a more continuous planning, which very often means more work for the teachers but better opportunities to adapt the planning to the current problems and the needs of the pupils.

In summing up these three aspects of the organizational problems it may be said that there have been many attempts to solve them, but so far it has not been possible to find an ideal solution.

4.9. Economic problems

An appendix to the report shows how the economic responsibility is divided between the state and the local community. As this has had an effect upon the special design of many of the experiments, something must be said about how the relation between manpower and costs is affected.

The experiments have usually taken place within one of the two economic systems. In the VGT, the PEDO and the PRIS projects the organizational design is mostly covered by the resources for teachers that are regulated by the state. This means that, for instance, teaching aids and many specialists in social work and pupil welfare cannot be taken into account within the organizational framework. In other development work, such as the LINS project and the building of open plan schools, the costs for teachers or for the in-service training of teachers cannot be calculated. These facts have placed many restrictions on the development work.

It has not been possible to tackle the consequences of these factors in the experiments in Malmö, because these must presuppose another technique for budgeting. It is perhaps possible to assume that if one wishes to have a well-functioning school system the responsibility for resources for the work must rest as closely as possible with those people who have the responsibility for the functions. What has emerged from the development work of the Malmö type is that it is necessary to solve the problem of what are the best "steering" instruments on different levels in a school system.

4.10. The innovation process

a) General characteristics of the experimental and research work

Most of the experiments in Malmö are typical field experiments. By this we mean that they:

- have grown out of needs and ideas in "the field";
- have developed and are organized within "the field" (the local community, the school, the teachers);
- have very small special resources for the experimental work (but in some cases quite a lot for the scientific analysis of the experiments).

The experiments may have been prompted by some general school reform or some general policy or developmental aspects in the Swedish society, but the design of the experiments originates from teachers, school-leaders and so on.

Most of the experiments are designed in a dialogue between field workers (teachers etc.) and educational scientists. There is nearly always an evaluation component in the experimental design. The resources for running the experiments mostly come from the local community but the resources for the scientific counselling and evaluation are given by the state.

b) Difficulties met in the innovation process

Difficulties may arise in many different stages of an experiment: initiation, planning, execution, evaluation, dissemination etc. We do not discuss these aspects here. Instead we shall analyse some main types of difficulties in the Malmö development work.

An innovation must in some essential sense meet the needs of the people involved in the innovation. In psychological terms one may speak of "need-reduction". For instance the teachers must feel that there is a problem that needs to be solved. It is not always clearly seen how a particular experiment can meet such needs.

A more difficult problem is that persons within the school system also have different needs, some of a personal type, others more related to their occupational functions. This means, for example, that the needs seen from the point of view of the whole school, the society, the school-leader etc. may come into conflict with the teacher's needs or the needs of different types of teachers (e.g. pre-school and primary school teachers). Therefore a serious discussion as to how a particular experiment influences the needs of different persons or organizations must be conducted.

Closely related to the problem of need-reduction is the problem of what in curriculum planning is called "social adequacy". By this expression is meant that an educational activity has a rather close relationship to the social system, the group etc. that the person belongs to. This has relevance for formal and informal configurations such as the school staffing, the teachers' unions etc.

Many difficulties appear within the area of attitudes. The first appears if the aim of the project is vague. This may result in confusion among people engaged in the experiment. Those involved develop their own picture of what are the aims of the experiment.

Another difficulty is that the attitude of the innovator is perhaps not conveyed to those engaged in the experiment. Thirdly there may be a real conflict in attitudes and values among those who work within an experiment if steps are not taken to try to solve this problem of values.

In some projects a conflict model is in fact built in, in the sense that some of the aims are in real conflict with other aims. This may be a model for development, if one really recognises and makes use of these contradictory forces.

A special problem of great importance in the Malmö experiments is the rotation of people within an experiment. People (teachers) who have started an experiment move to new posts within or outside the school. Those who take their places often do not have the same attitudes or are only vaguely aware of the aim of the project.

Difficulties related to a lack of knowledge are noticed both in people responsible for the experiments and in teachers and other persons involved in the experiment. In-service training is often a solution to these difficulties. As has been shown previously, the resources for the training of teachers and school personnel rest with the state (in special organizations and colleges for teacher training). Therefore one problem not yet solved has been how a locally innovated experiment can rely on the central resources for teacher training. A related problem is that there have not been resources or time for systematic analyses, which provide the new knowledge needed in an experiment. Often therefore the in-service training, courses etc. have not met the real needs. Here methods for a more systematic analysis are being developed.

Very often there has been a lack of resources for the development work. In an innovation it is nearly always necessary to have special resources during the first innovation period. This includes not only resources for research work, but also for "field work". Special resources are also necessary for implementing the results of the experiments.

Regulations and recommendations often cause difficulties for the experimental work. It may be difficult to find solutions which do not come into conflict with regulated organizational circumstances etc. In some cases the Ministry of Education has dispensed with such central regulations (e.g. IMU has been permitted to use money intended for teachers' salaries partly for educational material).

There has been a tendency by central authorities to try to promote educational progress in certain directions. In some cases the local development comes into conflict with this. Local research and development work may have difficulties being accepted by the central authorities. Even if there is quite a clear effort to come to a dialogue between central and local interests, difficulties sometimes arise in making this dialogue fruitful.

The teachers unions have a positive attitude to educational research and development activities. But they often have different views on what are the measures most needed. All the unions of course try to develop the best economic and working conditions for their members. Organizational experiments and new working conditions may in some instances be seen as a threat to existing routines or privileges. The teachers' unions recommend their members not to engage in local organizational research and development work without permission from the unions.

A real effort has been made to take all these problems into account in the Malmö experiments, but in spite of this they have presented difficulties which have not so far been sufficiently well overcome.

V. POLICY MEASURES

The research and development work done in the Malmö region has exerted a great deal of influence upon policy measures taken and change effected within the Swedish school system during recent years. Some of these steps were taken at local or regional level, whereas others have been taken centrally, influencing the whole school system. Some of these steps are the outcome of positive experience, others are to a greater or lesser extent the consequences of difficulties and problems that have arisen in the development and research work undertaken. Sometimes it is difficult to know how great the influence of the Malmö activities has been, as parallel activities have been carried out in other parts of Sweden. We will indicate only some of the most obvious measures taken during the last five years or so, with the emphasis on circumstances which have had an impact upon the situation of teachers. We will also indicate some problems which have to be dealt with in the future.

5.1. Central measures

a) New curriculum, new recommendations

Some of the Malmö projects have made obvious and important contributions to the new Swedish curriculum for the grundskola, the Lgr 69. The PEDO projects in Malmö and Skellefteå offered models for the pedagogical organization recommended in the curriculum text for the upper level as regards team teaching, flexible grouping, subject matter division into (often cross-disciplinary) study units etc.

The remedial clinics in Malmö and elsewhere were part of a general Swedish trend away from the use of special remedial classes towards a more integrated teaching of the handicapped in "clinics" or regular classes with the use of a companion teacher alongside the class or subject teacher.

In some respects, the IMU project has introduced the new mathematics to the whole of Sweden, but at the same time the IMU model as such is still subject to discussion.

The SAMSKAP schools opened up the general debate in Sweden on the building implications of educational change. However, at the same time these open plan schools caused violent debate on school building and the physical environment of education as a whole. Several open plan schools have been built or are being built in Sweden, more or less modified in relation to the Malmö experience. The National Board of Education gave permission to some local authorities to build freely under the general cost ceiling but, at the same time, issued alternative norms for school building, these norms in effect offering a kind of compromise between traditional schools and the open plan schools.

The FOL project, trying to integrate pre-school and primary school activities, is still a very recent project. Nevertheless, many similar activities have followed in its wake in other parts of Sweden.

b) State committees

State committees, appointed by the government and consisting mainly of members of Parliament with the help of experts, form an important instrument for achieving change in the Swedish society. At present, three committees appointed by the Minister of Education are dealing with issues, which were mentioned in the previous discussion. The SIA committee, dealing with the inner activities of the school, has initiated experiments aiming at a more flexible use of the resources of the school (one of these projects being the PRIS project, see Chapter III). In a recent debate publication the committee discusses an organization composed of teams of persons in the whole school on all levels. They also recommend a more flexible grouping of pupils. The SSK committee (State, School, Local Authority) works out how to divide resources and responsibility between the state and local authorities in order to develop a more decentralized system. The State Committee on Early Childhood Education (day care centres, pre-schools) is working on problems concerning the co-ordination of pre-school and primary school and of school activities and leisure time activities on the primary level, and the organization and training of staff for these purposes.

c) Education development centres

The idea of establishing "education development centres" originated in Malmö. Together with Kalmar, Malmö was the first local education authority to be given permission to form such a centre. This meant that the National Board of Education would contribute certain financial resources, equal to those provided by the local authority, and also appoint a steering group for the centre, which was to work in co-operation and consultation with the central authority. The experience gained in Malmö, Kalmar and, somewhat later, Skellefteå and a few other places was positive. Later a programme for the continuous establishment of similar centres, receiving state grants over a period of five years, was developed. At present, each centre has to tackle a different problem or, rather, set of problems (such as team teaching and flexible grouping on the upper secondary level - Sundsvall, pastoral care of pupils - Uppsala, or the teaching of Swedish on all school levels - Gothenburg). Common to all is the purpose of stimulating teachers to development and experimental activities, building as far as possible on their own initiatives, but providing them with some extra resources and incorporating them in a network of local contacts and contacts with the central authority. For Sweden, the organization and work of development centres has formed an instrument for innovation instead of individual experimental schools. For a long time the relationship between the R & D work carried out in research institutions and in the educational development centres has been unclear. At present a couple of models for co-operation are being discussed. However, in Malmö a model has been worked out and put into action to general satisfaction. The problem of the long-range financing of this co-operative arrangement remains to be solved.

d) Programmes of development

According to a decision made in Parliament, school reform in Sweden is to be a continuous process in the future. To serve this purpose, the National Board of

Education has recently appointed working groups to suggest possible directions of reform for the period ahead. These groups are taking into account the needs and problems of local and central authorities and results of research and development work. To a certain extent, proposals presented by these groups draw upon the Malmö development and thus a definite effort has been made to make use of local experimental ideas and results of development work as an incentive for centrally initiated innovation and reform proposals.

5.2. Local or regional measures

a) Teacher training, in-service training of teachers and heads of schools

Teacher training in Sweden is the responsibility of the state. In in-service training, central, regional and local authorities co-operate and also consult the teachers' unions. Thus, teachers' training as such is less flexible and it takes longer for locally initiated innovations to penetrate into the vestiges of teacher training. During recent years, many summer courses and so-called study days (each Swedish teacher has to take part in five such days over the school year) have been focused upon new pedagogical organization, such as team teaching, flexible grouping, cross-disciplinary work including the division of subject matter into study units etc. Locally, study packages for teachers in the Malmö area open plan schools have been produced. With a state subsidy these are now being revised for use with teachers and heads of open plan schools all over the country. The schools which developed the PEDO model served as bases for in-service training when the Lgr 69 was to be introduced. Films, slides, organization charts were produced to demonstrate how the work was done, and study visits were also organized on a broad scale. In certain projects, e.g. the FOL project, teacher in-service training is an in-built feature of the programme itself.

As the role of heads (of schools, departments etc.) is changed in schools according to new models of work, the importance of their training for pedagogical and not merely for administrative tasks has greatly increased. New efforts have been made lately in Sweden and the role of the head as initiator of innovation has received special attention. However, much remains to be done in this field.

In Malmö, co-operation between the School of Education and the Local Education Authority is close indeed. There has also been a fruitful interaction, as the presence of a large teacher training institution in Malmö inspires teachers all over the local school system to constant review of their methods. At the same time, the existence of active innovative work within the local school system gives practising student teachers the opportunity of watching the innovational activity at first hand. In spite of this, it must be said that there are difficulties in introducing innovations more systematically into teacher training. The overcoming of these difficulties seems to be one of the key issues which have to be dealt with.

There are schools for experiment and demonstration attached to the Schools of Education but belonging to the local school systems. These also play an active role in the local experimental work and may sometimes serve as valuable links between field activities and research institutions.

b) Reference groups

Difficulties arising during the process of innovation in Malmö demonstrate the importance of attempting to involve everybody who would be affected by the innovations in the process itself and offering them an opportunity to influence the research and development work. From the start of the educational development area in Malmö, there has been a co-ordinating committee with representatives for teachers, administrators, researchers and other persons involved. Nevertheless conflicts and misunderstanding have arisen, especially between representatives of the unions of teachers and the school authorities. Therefore, at present, in all experiments where teachers or other personnel are affected, they are invited to send representatives to reference groups. Very often, pupils and parents are also represented in these groups. A fruitful dialogue between teachers and others involved on the one side and those responsible for the research and development work on the other hand, has emerged. The outcome of this dialogue is exerting a positive influence on the innovative process itself. In a previous section the risk of the union of teachers having a conservative influence is discussed. It is therefore very important to find ways of involving both unions and other more or less official representatives of the parties concerned so that positive reform work is favored.

c) Feedback from research work

As soon as possible, links were formed between those responsible for the development work within the Malmö school system and the leadership of the Research Department of the Malmö School of Education. A constant interaction has emerged, teaching the research workers the importance of giving a continuous feedback to teachers and decision makers. This may be a difficult process as, very often, teachers and decision makers (parents, pupils etc.) are apt to expect clear and simple answers to hard and complex questions. Those working on the development side are slowly learning how to put their questions, what to expect and not to expect in the form of answers and what use to make of information received. Over almost ten years of constant work in co-operation, a fruitful dialogue has developed between all parties involved, thus leading to a kind of spiral effect of action and reflection leading to research, the result of which is fed into renewed action, which in its turn very often leads to the need for renewed reflection and research.

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APPENDIX

Resources and their allotment

According to the Education Act it is the duty of the community to provide education for children in the grundskola and provisions for educating children and adolescents in gymnasia (secondary) schools.

Even if schooling is a municipal matter, the state also has its obligations as to education. In accordance with Swedish tradition the state has a supporting and a directing function. The interaction of the two functions can be illustrated by a simple diagram:

Description of goals	undecided
Allotment of resources	decided

The interpretation of the curricula is to a great extent left to the education committees and to the schools.

Instead, a detailed regulation of the outer framework of the activities is made through the allotment of resources. There used to be a system of state grants to different branches of educational activities: Government subsidies were thus granted to cover the major part of teachers' salaries, school transport, meals, teaching materials (as a stimulant) and school libraries. All these subsidies affected the operating costs.

Since the 1960s there has been a reorganization of the comparatively large number of government grants. Now, on principle, only one subsidy is granted to the grundskola, namely the so-called general operating grant. This grant is supposed to comprise not only all the above-mentioned subsidies for the running of schools but also certain support of other municipal activities among children and adolescents. The operating grant is calculated with regard to the number of posts for teachers and school leaders created at the school in the stipulated way.

A post forms the basis for grants only in so far as it carries teaching or other services laid down in time-tables or other instructions. The annual salary of a post is determined by the salary-grade in which the teacher is placed. In this way the basis for grants to the grundskola is determined. The operating grant is given to the municipality, reduced by a minor municipality share varying according to the so-called housing classification.

The same system is valid for the gymnasia school, with the exception of the municipality share which is not deducted. The government grants are thus closely related to teachers' salaries and posts. Nevertheless, it is possible to compare state costs and municipal costs per pupil.

For the school year 1973/74 the average cost for a pupil in the grundskola can be estimated at 7,400 SKr. The state pays some 4,100 SKr. or 55% of this. A pupil at secondary school costs, similarly, some 9,900 SKr. of which the state pays 6,100 SKr.

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